The Newspaper of Information Systems Management
November 28, 1994, Vol. 28, No. 48, 160 Pages, $6/Copy, $48/Year

COMPUTERWORLD

Rivals try to derail Intuit deal

Report savages Microsoft strategy

By Mitch Betts and Stuart J. Johnston

A secret cabal of Microsoft Corp.'s competitors has produced a white paper for the U.S. Department of Justice that puts forth a new theory on how Microsoft could take monopolistic control of the markets for PC software, PC networks and on-line services.

The goal is not only to derail Microsoft's planned acquisition of Intuit, Inc. but also to get the agency's Antitrust Division to restrain the Microsoft juggernaut in a variety of other fields.

Fear of reprisal

The confidential white paper was produced by two economists and Gary Rehack, a high-profile software industry attorney at Wilson, Sonsini, Goodrich & Rosati in Palo Alto, Calif. He said he could not name the companies that funded the economic study because they fear retaliation by Microsoft.

"We give examples of what will happen if the government doesn't intervene — in publishing, credit, on-line purchasing — and how Microsoft is going to dominate everything. So we paint a pretty scary

Rivals, *page 16*

Global management tackled

Worldwide support: Truth or dare?

By Jaikumar Vijayan and Julia King

Entex Information Services last week joined the growing number of vendors that offer international support and service.

Thus far, user response to such global providers has been mixed and cautious. Some say discounts are a distinct advantage of such an arrangement; others are unconvinced that the resources needed to implement this kind of management are truly in place around the globe.

Entex, a New York-based value-added reseller, announced a partnership with Info'Products Europe in the Netherlands to provide a one-point international information technology support organiza-

Support, *page 146*

Global asset management is becoming a critical subject that will shape sales, marketing, services and staffing strategies for a wide range of companies, a recent Dataquest survey found.

Users eye metering tools, floating licenses

By William Brandel

The buyers are intent on cutting costs, the sellers are angling to make money, and some lawyers stand to get rich.

No, this is not a real estate transaction. It is the result of enterprisewide metering technology, which could swing the software pricing argument heavily in users' favor.

Ki Wilson of Stone Container: *Metering could spread software costs across a larger pool of users*

Users have clamored for enterprisewide software metering tools that are capable of accurately measuring software use across a wide-area network from one location. With these utilities, users will be able to buy only as much software as they use — instead of what they may need — and then use it again at another site around the globe when the day ends.

The result can be a massive savings in the number of licenses needed. Some of these much anticipated utilities will ship this week.

The clear-as-mud matchup between technology and licensing is putting users and vendors at loggerheads. With the new tools,

Metering, *page 146*

On-line libel lawsuits looming

By Mitch Betts

Mother always said, "If you can't say something nice, don't say anything at all." Now, employers may want to give that lecture to employees as they post messages in cyberspace — or risk multimillion-dollar libel lawsuits.

The flame wars and on-line insults of the electronic frontier have finally spilled into the courts. This month, Prodigy Services Co. and a subscriber were sued for $200 million over a message that called a particular stock offering a criminal fraud.

Everyone's problem

The posting of libelous messages is one of the greatest nightmares of information service providers such as Prodigy and CompuServe, Inc. But it could be a problem for corporate electronic-mail managers, too.

At Eastman Kodak Co. in Rochester, N.Y., employees are not allowed to post information on Internet discussion groups when the message bears a Kodak address because it might be seen as reflecting Kodak opinions, said Robert L. Mirguet, an information security manager, at a recent conference.

That is just one of several types of E-mail abuse the company investigates on a regular basis, he said. Others range from on-line harassment to running a side business and posting advertisements with a Kodak address on the Internet.

The common practice of putting a disclaimer at the bottom of public E-mail messages — that the author does not speak for the company — is not a bulletproof shield, legal experts warned last week.

"Disclaimers will be just one fac-

On-line libel, *page 14*

"This is fraud, fraud, fraud and criminal!!!"

This note on Prodigy's Money Talk bulletin board describing a recent stock offering sparked a $200 million lawsuit.

INTERVIEW

Alan Levenson

Bill Gates discusses CIOs, Windows NT, Windows 95 and the Microsoft of today and tomorrow. *Page 39*

Deregulation strategies

Utilities plug in to outsourcing

By Mark Halper

With deregulation putting a competitive charge in the power utility industry, a surge of outsourcing contracts is striking gas and electric companies looking to shake off years of IS cost complacency.

Outsourcing deals signed earlier this month by Philadelphia Electric Co. and San Diego Gas & Electric Co. mark the beginning of what should be an outsourcing bonanza, according to analysts and information systems executives at utilities.

The spark to this activity is the federal Energy Policy Act of 1992, which required utilities to allow other power companies into their power distribution grid. That set the stage for an energy world in which end users would be free to choose among several gas and electric suppliers. This free market is expected to start taking hold on a state-by-state basis in about three years, as state regulatory agencies and utilities work out details.

CIO Katherine Holland: *Utilities can't thrive in a 'cozy cocoon'*

"All the utilities are starting to talk about outsourcing now," said Katherine Holland, chief information officer at PECO. "The major impetus is the need to get more cost-competitive because we're not going to be

Utilities, *page 16*

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What's Inside

November 28, 1994

Michael O'Neill-Owens: Businesses will rule the 'net

SOUND

The Internet's business users are a bunch of bullies who want to take over what has traditionally been a forum for the open exchange of ideas. So says an academic Internet user, who takes on a business advocate in a lively debate. *See In Depth, page 116.*

Jayne Levin: Businesses should use and profit from the 'net

NEWS

- How Microsoft handles its OEM bundling rules could impact user decisions on **Windows 95**. Developers also resent being forced to co-develop Windows NT applications just to gain the Windows 95 logo. *Page 4*
- Microsoft goes back to the drawing board on **WinPad**, slowing the market for personal digital assistants. *Page 6*
- **IBM steers the AS/400** into the client/server fast lane, but some key features won't catch up until February. *Page 7*
- Users stumble through a splintered **sales force automation** market. *Page 8*
- Computer Associates will integrate ICL's software distribution and intelligent agent technologies into its **CA-Unicenter systems management suite**. *Page 10*
- Network managers frustrated with seat-of-the-pants design methods are paying closer attention to **automated network design** and modeling tools. *Page 12*
- **MCI** plans to open a digital shopping mall. *Page 15*
- **CDPD** scores on interoperability tests. *Page 20*
- Watch for new servers running **shrink-wrapped software**. *Page 28*

DESKTOP COMPUTING

- A study ranks **PC product reliability** as the most important factor driving customer satisfaction. *Page 41*

WORKGROUP COMPUTING

- Major systems vendors are investing in **microkernel technology** as a way to boost performance through efficient, modular operating system code. *Page 49*

ENTERPRISE NETWORKING

- Digital's new **Asynchronous Transfer Mode** switch is expensive, but users say they like the throughput and reliability. *Page 55*

LARGE SYSTEMS

- As **capacity planning** tools enter the client/server architecture era, customers adopt varied strategies to handle the task. Others just say no. *Page 75*

APPLICATION DEVELOPMENT

- Users say the real benefits of **application partitioning** come from up-front planning. *Page 97*

MANAGEMENT

- **IS managers** who succeed in the distributed, decentralized '90s won't manage — they'll govern. Some CIOs have already begun. *Page 105*

CAREERS

- Tips for telling staffs about **corporate downsizings**. *Page 125*

MARKETPLACE

- **Consider leasing** if you plan to trade in your Unix servers within four years. *Page 133*

COMMENTARY

- **Charles Babcock** warns users not to count PowerPC out yet. Microkernels and the maturation of Intel's chip architecture could open new opportunities for the technology. *Page 6*
- **Bill Laberis** urges the high-tech sector to ensure that the new order in Washington delivers on issues of substance. *Page 36*
- Michael Schrage says don't worry, the **information superhighway** will do just fine in a GOP-dominated Congress. *Page 37*
- **Larry Runge** ponders the age-old PC question: To be or not to be a toy? *Page 37*
- Object-oriented database makers are still hanging on, although several of them look vastly different from the way they did at their inceptions, **Kim Nash** says. *Page 100*

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Executive Briefing

You want to know who is using all those spreadsheets you're buying and when. And you don't want to pay for them when they're idle. Metering tools promise to allow users to buy only as much software as they use — instead of what they may need — and use it again at another site around the globe when the day ends at their site. Vendors, however, may oppose the use of such tools. *Page 1*

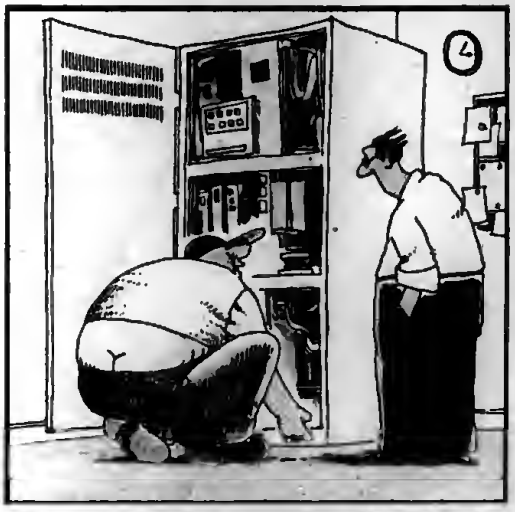
Support vendors are promising worldwide services that would provide efficiencies and discounts. However, the users' reviews have been mixed. Some new offerings work well and others just aren't ready for global implementations, users say. *Page 1*

Advertising agency Leo Burnett revamped its core application. But when developers finished, they knew that the 40G-byte system would be too big and expensive to deploy at each of the firm's 60 offices. So developers created a thinned-to-the-bone version of the client/server application, making it more portable. *Page 29*

Chairman Bill Gates says Microsoft is looking for volunteers in the CIO community to upgrade all of their PCs to Windows 95 and to provide feedback prior to final shipment in exchange for discounts. He also says Windows 95 is "feature-complete," endorses both the Intel and RISC architectures and suggests that the new Microsoft Network will smooth communications between Microsoft and its user organizations. *Page 39.* Meanwhile, Microsoft competitors warn the Justice Department of Microsoft's looming domination of several information technology markets. *Page 1*

On site this week. The San Francisco Symphony, home to classical music, is adding a new look and feel to a classic computer system. *Page 93.* Camera maker Olympus America, Inc. kicked off a companywide re-engineering project not by analyzing current business processes, but by installing a new enterprisewide information system. *Page 93.* Fannie Mae has rolled out an electronic data interchange network that was designed to help borrowers reduce the costs of originating a mortgage by $1,000. *Page 55*

The 5th Wave *by* Rich Tennant



"YEAH, I USED TO WORK ON REFRIGERATORS, WASHING MACHINES, STUFF LIKE THAT - HOW'D YOU GUESS?"

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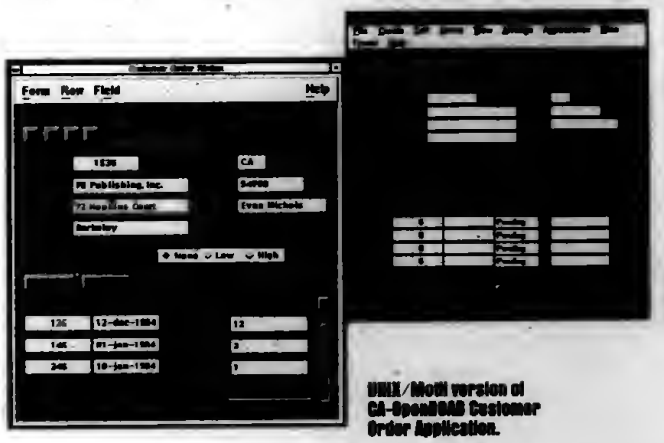

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OEMs concerned about Windows 95 terms

By Computerworld staff

Microsoft Corp. is doing the limbo to get OEMs to bundle Windows 95, but it may not be bending over backward enough for some.

Although Windows 95 is still more than six months away, Microsoft has begun detailing to PC manufacturers and others some aspects of how the replacement for MS-DOS and Windows will be made available.

Details include the following:

- Company executives last week issued an open challenge to IBM, declaring that OS/2 will be incapable of running Windows 95-specific applications.
- PC OEMs are likely to pay at least 10% to 15% more overall for Windows 95 than they now pay for DOS and Windows on new machines, according to sources briefed by Microsoft.
- OEMs will have the option of shipping systems with both Windows 95 and its predecessor, Windows 3.1, so users can choose which system to use.

How OEMs handle the bundling issue will have a real impact on corporate users' options, according to a survey of 50 information systems managers conducted for *Computerworld* last week.

Most companies surveyed purchase PCs with system software installed — usually Windows 3.1 or Windows for Workgroups 3.11.

Although it is not surprising that IS managers would choose a proven shipping system over an unreleased one, Windows 95 still finished in third place, well ahead of OS/2. In the survey, 44% of respondents opted for Windows 3.1, 22% for Windows for Workgroups 3.11 and 18% for Windows 95; 8% said they prefer OS/2.

Given those preferences, it is also not surprising that at Comdex/Fall '94 earlier this month, Microsoft outlined plans to give OEMs the option to ship both Windows 95 and Windows 3.1 with MS-DOS on the same PC.

"At first boot, the user will be given the choice of which [system] you want to use, and the other one will be deleted," said Brad Silverberg, Microsoft vice president of desktop systems.

Additionally, Mike Maples, Microsoft executive vice president of products, told a Comdex audience that because IBM no longer has rights to Windows source code, it will not be able to run Windows 95 applications any time soon.

Tried and true

Sixty-six percent of IS managers polled said they want new systems to come with Windows 3.x.

User bases firmly entrenched

But an informal poll of eight users last week showed that most do not care whether Windows 95 applications will run under OS/2. In general, users who have already committed to Windows will most likely stick with Windows, and those who have committed to OS/2 will stand fast as well.

On the hardware front, the fact that the overall prices Microsoft has been floating with OEMs for Windows 95 machines have been higher than what OEMs pay for DOS and Windows is causing an outcry.

Microsoft's Mike Maples: *OS/2 will not be able to run Windows 95 applications any time soon*

However, sources close to Microsoft said those prices, which could range from $40 to $55 per machine, were merely put forward as starting points for negotiations and that a variety of incentives lower those figures. OEMs must decide whether Windows 95 provides enough added value over Windows and DOS to offset the added expense, the sources said.

Still, sources at leading PC vendors are fuming, and some disputed that all the discounts would result in only a 15% increase.

OEMs also complained that if Microsoft follows through on its trial balloon, it may hurt already thin profit margins in PC sales.

IBM, for one, is uncertain when it will bundle Windows 95. Sources inside IBM said it is unclear whether there will be significant demand for the new operating system right away. Those sentiments were echoed by sources at Compaq Computer Corp. and Hewlett-Packard Co.

Senior editors Stuart J. Johnston, Michael Fitzgerald and Ed Scannell contributed to this report.

Bill Gates discusses the future of Microsoft. See page 39.

Developing for next generation of Windows may mean running on NT

By William Brandel and Ed Scannell

While software developers are enthusiastically preparing their wares for Microsoft Corp.'s rollout of Windows 95 next year, they are not thrilled about the strings attached to Windows NT.

A number of software developers last week expressed both reluctance and frustration over their efforts to codevelop Windows 95 applications that also run on Windows NT. Microsoft has required that software developers who want to use the Windows 95 logo meet a standard of seven different features, one of which is that the application also run on Windows NT [CW, Nov. 14].

A number of vendors said developing for the two operating systems is difficult, as each targets a different market. Windows 95 is the 32-bit version of Windows mostly likely to run on Intel Corp.-based desktops, while Windows NT targets applications that have typically run on Unix platforms, such as server and workstation applications.

"We are not going to delay our Windows 95 applications so that we can deliver Windows NT applications at the same time," said Peter Cohen, a spokesman for Lotus Development Corp.'s spreadsheet business. "We just don't see the demand for desktop applications on Windows NT."

In addition to the timing issue and a perceived lack of demand for Windows NT applications, Cohen cited the need to conduct extra rounds of quality assurance testing for applications that run on NT. Those resources could be better applied elsewhere, according to Lotus.

NT = no ties

The following vendors are writing applications for Windows 95, but they have different plans for Windows NT

Vendor	Windows NT development
Lotus	Yes, but effort is separate from that for Windows 95
WordPerfect	Yes, but having trouble
Symantec	No, little customer demand

This sentiment was echoed by a number of developers, including officials at WordPerfect, the Novell, Inc. Applications Group. WordPerfect is trying to meet the NT compatibility requirement.

"Windows NT has [more than a dozen] different APIs, a different shared memory space and different bugs to test for," said Gary Gibb, director of development for WordPerfect's PerfectOffice. "You have to go through your entire testing cycle on a number of different hardware configurations and then repeat these tests on NT. And none of this makes the Windows 95 applications run any better."

However, while Microsoft has listed running on NT as a Windows 95 compatibility standard, it has also left the door open for vendors to opt out. Microsoft will allow certain vendors to "degrade gracefully," or choose not to comply with some of the compatibility requirements, if the applications do not mislead the end user into believing certain functions are available when they are not, said Brad Struss, manager of Win32 developer relations at Microsoft.

"We'll let some vendors gray out an item menu if they don't support a feature," Struss said. He added that Microsoft's aim is to ensure that users do not run into application errors from trying to run a Windows 95 application on NT.

As for the alleged difficulty in developing to the Windows NT application programming interfaces (API), Struss blamed confusion over which API developers should be using.

Few choices for small vendors

While companies such as Lotus and Symantec Corp. have opted not to let the NT compatibility requirement bog down their Windows 95 application deliveries, smaller companies with limited resources are facing tougher choices.

"We have to measure the investment for Windows 95 development vs. our revenue streams for Windows 3.1," said Bruce Shafer, president of PC-Kwik Corp. For a smaller vendor, "it is a tightwire act," Shafer said.

Resources aside, other small vendors said their products are not conducive to the NT platform.

"The logo requirement is extreme," said Richard Smith, president of Phar Lap Software, Inc. "It makes no sense for us to have our Front Runner under NT." Front Runner is a shell that enables an end user to toggle between Windows and DOS applications.

However, it is risky to be a software developer rebelling against the mandates of Microsoft, cautioned industry watcher Jeffrey Tarter, editor of "Soft Letter" in Watertown, Mass.

"There is a long history of developers who thumbed their noses at Microsoft and later regretted it," Tarter said. "As an [independent software vendor], betting against Microsoft does not seem to be a high-payoff game."

Senior editor Michael Fitzgerald contributed to this report.

Correction

Due to a reporting error, "Replication falls short" [CW, Nov. 21] incorrectly identified the consulting firm where analyst Judy Davis works. Davis works at Patricia Seybold Group in Boston.

"WITH ORACLE CDE WE BUILT A WORLDWIDE SYSTEM IN FOUR MONTHS."

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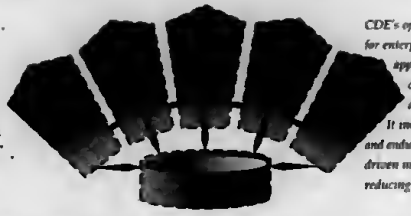

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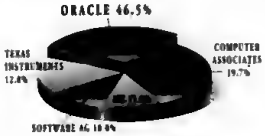

*Oracle sells more tools than any independent software company.**

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©1994 Oracle Corp. *Source: IDC–Ranking of top 5 worldwide revenues for ISV 4GL and CASE vendors.

The window in PowerPC's future

The task of looking for trends at Comdex/Fall '94 in Las Vegas is a lot like searching for a set of tracks in the middle of a stampede. It's hard to discern anything specific in the overall din and confusion.

Nevertheless, beyond the shills, barkers and hucksters of the main hall, two patterns were evident. One is that the Intel architecture faces a long-term challenge from the RISC-based PowerPC, even if that challenge appears desperately feeble today.

Second, desktop operating system vendors such as Microsoft, IBM and Taligent are scrambling to free their systems from dependence on any single hardware platform.

As you might guess, the trend toward operating system independence ends up supporting the drive to break the Intel architecture's dominance. If the operating system is indifferent to the hardware, mixed hardware may sit side by side running the same operating system and supporting the same client/server environment. Coming generations of the PowerPC will eke out larger performance gains over the Intel x86 architecture until the PowerPC offers a persistent argument to switch.

So if you're becoming accustomed to Intel's dominance as one way of understanding the modern client/server world, keep your eyes open and your guard up. Just as Intel's position is subject to erosion, Microsoft's seemingly indomitable position may likewise look more ephemeral by the end of the century.

The x86 chip dynamics will play themselves out during the next three years, and a window of opportunity will open for the PowerPC.

Charles Babcock

The operating system of the future will be microkernel-based — a compact core that passes instructions to the hardware on behalf of system services located outside the kernel. Because only the kernel has to be ported to the hardware, microkernel systems cross platforms more easily than layered, monolithic systems with millions of lines of code (see related story page 49.)

Microsoft's Windows NT is organized around microkernel principles, but Microsoft could still find itself flanked by such competitors as Taligent and OS/2 as Taligent and IBM move faster and further on the microkernel front. They have the advantage of being less encumbered by the concerns of the Windows customer base.

In a somewhat similar fashion, PowerPC has a long-term advantage over the Intel architecture. As a RISC-based design, PowerPC has "an instruction set intelligently designed for the current level of technology," said Michael Slater, editor of the "Microprocessor Report" at a Comdex session on Intel and RISC designs.

"The CISC architectures are ones that nobody would design for today's technology. Intel builds x86 processors not because they like the architecture but because there happens to be a many-billion-dollar market for it that is not going to convert very quickly," Slater added.

The market for 486 and Pentium chips is incredibly large and has attracted competitors such as Cyrix, NextGen, Advanced Micro Devices and IBM to produce 486 and Pentium-like chips. The competition is so keen that 486 prices are falling and Intel is dropping Pentium prices faster than it prefers.

"The irony here is that Intel resents its competition no end, but the x86 architecture is in a much stronger position because of the fact there are alternatives to Intel," Slater said.

These x86 chip dynamics will play themselves out during the next three years, and a window of opportunity will open for PowerPC. By capitalizing on its RISC design, Apple/IBM/Motorola will be able to produce faster, less-expensive chips than Intel's CISC architecture. The chips will find their way into parallel servers and high-performance desktops until they command the upper niche of the market, and then they will move down.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Microsoft reworks WinPad

By Michael Fitzgerald

■ Microsoft Corp. last week said it was scrapping its efforts and starting over on its personal digital assistant (PDA) operating system, called At Work for Handhelds and code-named WinPad.

The decision means that the potential for a large PDA market will be delayed until at least 1997, analysts said. This is partly because vendors had positioned WinPad and its accompanying hardware as the main way for users to access Windows from handheld computers.

Microsoft's market withdrawal may also slow deployment of wireless networks, analysts said.

"It certainly is a flat tire on the road to success" for PDAs, said Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass. Stephen said the blow was more to Microsoft's corporate ego than to its wallet, given the disappointing reception of PDAs so far.

Slack sales

Some 80,000 PDAs were sold last year, but only 40,000 sales are expected this year. Only 70,000 units are likely to be sold next year, according to Constellation International in Norwell, Mass.

David Britton, WinPad's product manager, cited several factors that led to Microsoft's decision to rework the product. They include the following:

- The Polar chip set from VLSI Technologies, Inc. and Intel Corp. was rejected by hardware makers, which meant there was no low-power, low-cost chip set to run a WinPad [CW, July 25].
- The expected cost for WinPad machines was more than $1,000 and was widely considered to be too high for the market. This drove Compaq Computer Corp. to delay its Mobile Companion [CW, May 16].
- WinPad's systems requirements drove up component costs such as RAM and display size.

Users contacted last week were not overwhelmed by the announcement.

"You don't move forward in this market by waiting for hardware," said Edward N. Altman, vice president of information systems at Metro-Goldwyn Mayer, Inc. in Santa Monica, Calif. Altman said he is testing BellSouth Cellular Corp.'s Simon cellular phone/PDA.

"If it works, we'll get 30 to 50 people out there on Simon, and in the next generation we'll go get the more powerful stuff," Altman said.

Still, some developers expressed concern. "From a corporate user's standpoint, they're probably disappointed because they wanted to support one standard," said Ed Ross, president of Core Systems, Inc., a pen-based developer in Boulder, Colo.

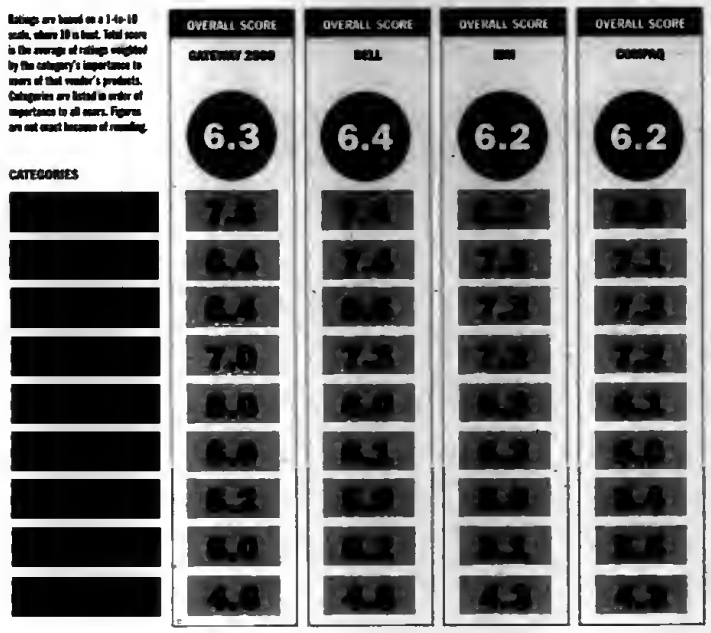
The WinPad group was recently placed in the newly created Microsoft Personal Systems Division. Pulsar, another Microsoft project dedicated to wireless communications, and Windows are also in the division.

Due to a reporting error, the data in the Nov. 14 Buyers' Satisfaction Scorecard was incorrect. Below is the correct data.

PENTIUM USER SATISFACTION

RESPONSE BASE: 50 USERS PER PRODUCT

Ratings are based on a 1-to-10 scale, where 10 is best. Total score is the average of ratings weighted by the category's importance to users of that vendor's products. Categories are listed in order of importance to all users. Figures are not exact because of rounding.



IBM revs up AS/400 for client/server

By Craig Stedman

IBM last week shifted the AS/400 into the client/server fast lane by releasing an eagerly awaited revamp of its operating system. But some of the bags that were expected to make the trip did not get packed in time and will have to be picked up in February.

The shipment of Version 3 Release 1 of the OS/400 software still qualifies as a milestone event in the evolution of the midrange machine, and IBM officials said 90% of the code made it out of the laboratory on schedule. But users voiced regrets that some key client/server pieces were left behind for three months of additional finishing.

Making the cut

New OS/400 features available immediately include a release of the Integrated DB2/400 database with improved SQL query performance and support for triggers, stored procedures and two-phase commit; faster TCP/IP software; and expanded support for standard Unix application programming interfaces.

"The biggest benefit we're waiting for is the client/server part of it," said Roman Ostapowycz, operations supervisor at Rollerblade, Inc. in Minnetonka, Minn. "We want to use the AS/400 more as a client/server platform if it works up to what it could be."

Among the items that will not be delivered until February is a 486-based processor board said to increase the AS/400's file serving throughput by eight times. Also on hold are the Windows 3.1 version of IBM's new PC connectivity software, an update of the CICS/400 transaction monitor and a Posix-like file system that supports both AS/400 and Unix data formats.

Workload reducing

Rollerblade is particularly interested in getting its hands on the File Server I/O Processor board, Ostapowycz said. The 486-based board should allow some of the company's PC servers to be taken out of commission, reducing systems management workloads, he said.

Despite the missing pieces, Rollerblade plans to install the first batch of Version 3 Release 1 code as soon as possible, according to Ostapowycz. But he said it would have been easier if the entire release was shipping "so we could do the legwork and investigate all of the technology at the same time."

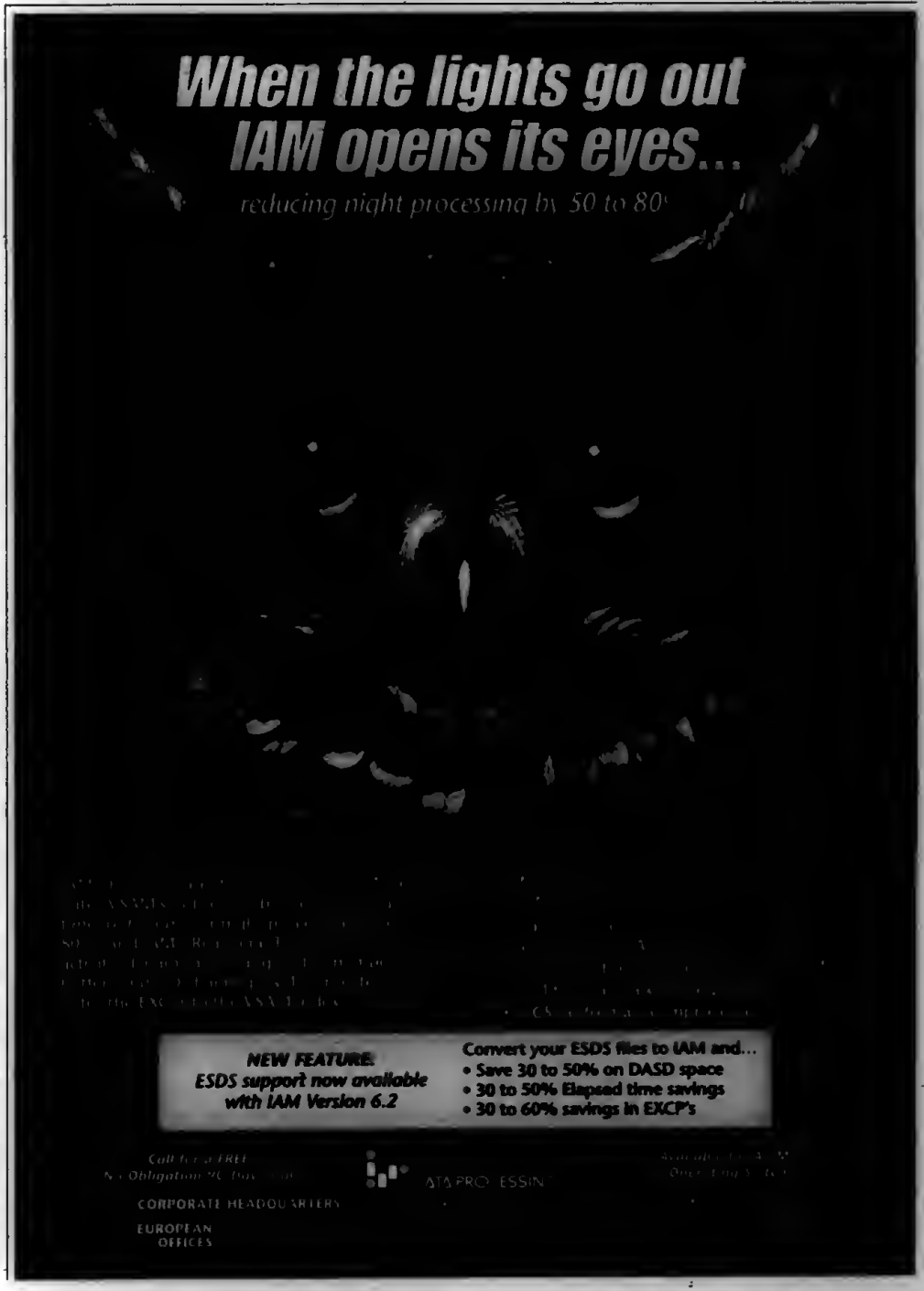
Mallinckrodt Medical, Inc. in St. Louis will not install the new operating system on its AS/400s until mid-1995 due to an internal re-engineering project, said Marc Smith, director of information services at the medical products and pharmaceuticals company. But he noted that Mallinckrodt also wants to wait until all of the software is in place.

"We really need the total package," Smith said. "We don't like doing things in pieces. It's just extra work to set things up twice rather than once, and the windows of opportunity for [taking systems off-line] are pretty short around here."

David Peterson, president of Midrange Open Business Strategies, Inc., a consultancy in Rochester, Minn., said the new OS/400 release has the potential to eliminate IBM's need to "dance around" such issues as openness and database and TCP/IP functionality.

"The AS/400 had a terrible adolescence" during the past three years, marked by flat sales and withering competition from Unix system vendors, Peterson noted. However, Version 3 Release 1 "is basically proof that this is not your father's Oldsmobile anymore," he said.

David Andrews, managing partner at D. H. Andrews Group, Inc. in Cheshire, Conn., agreed that customers will now be able to make "more aggressive" use of the AS/400 in client/server environments. But he said it will likely be a year before AS/400 software vendors can take full advantage of Version 3.



News Shorts

Novell debuts new licensing options

Novell, Inc. has introduced a flexible licensing structure in preparation for next month's rollout of NetWare 4.1. The program will allow users to augment their existing licenses with smaller license packs. Under the current license program, if a NetWare shop has a 250-user license but 275 nodes, it has to upgrade to the next level of 500 users. Now, users can simply add a 25- or 50-user pack to their 250-user license. The program begins this week.

Next, SunSoft release final spec

Next Computer, Inc. and **SunSoft, Inc.** last week released the final specification for the OpenStep application programming interface. OpenStep is an operating system-neutral version of Next's NextStep development environment. The goal is to let users port applications built in OpenStep to compliant systems from SunSoft, Hewlett-Packard Co. and Digital Equipment Corp. Users and developers can get the spec via the Internet at ftp.next.com.

DEC to continue PC barrage

Digital Equipment Corp. will continue its PC blitz next month with the introduction of high-end models that recast the old DECpc XL line. Dubbed Prioris, the models are expected to include 90-MHz, single- and dual-processor, rack-mountable models based on Intel Corp.'s Pentium chip. Sources said a quad-processor model in the same line will ship early next year.

Symantec releases PCAnywhere server

Symantec Corp. will release PCAnywhere Access Server 1.0 today, which reportedly enables users to run up to eight remote sessions over a single modem line. It will also let network administrators manage up to eight remote control sessions. Targeted at companies with telecommuters, remote training needs, remote offices and help desks, PCAnywhere Access Server will cost $329. That includes two copies of PCAnywhere for Windows 2.0.

Microsoft's BackOffice server ships

Microsoft Corp. last week said its Systems Management Server (SMS), which manages desktop hardware and software in client/server networks, will ship to customers this week. SMS is part of Microsoft BackOffice, a product suite that also includes Microsoft's Windows NT Server, SQL Server, SNA Server and Mail Server.

Massively parallel bottlenecks studied

The University of California at Los Angeles (UCLA) and **Locus Computing Corp.** received $2 million in research funding from the federal government's Advanced Research Projects Agency for a three-year study on performance bottlenecks in massively parallel processors (MPP). The goal is to produce new approaches to writing MPP software. An Intel Corp. Paragon system will be studied first.

Changes at Kmart

Financially ailing **Kmart Corp.** last week ousted IS chief David M. Carlson and named insider Marvin P. Rich to oversee the retail giant's IS operations on an interim basis. Carlson will remain at Kmart to work on special projects. He will report to Rich, who is executive vice president of strategic planning, finance and administration. Rich emphatically denied reports that the 4,000-outlet discount chain was having any computer or systems problems whatsoever. Nevertheless, he said Kmart will significantly speed up the pace of previously planned systems integration projects and new system rollouts.

More shorts, *page 16*

Users trying again with sales force automation

Firms learn they can't skip understanding the sales process

By Michael Fitzgerald

■ Sales force automation seems straightforward enough: Take your sales force, give them notebooks and software, and watch the dollars roll in.

However, it is not quite that easy, according to users and analysts.

Picking the software or deciding whether to develop it on your own can be a challenge — to put it mildly — in a market that has from 500 to 800 vendors and overall sales tagged somewhere between $165 million and $1 billion. The software runs the gamut from customized applications integrated closely with host systems to contact management running on notebooks.

New York Life Insurance's *Victor Matnick says, 'The most critical thing to a salesman is not to look bad in front of clients'*

Also, there is no guarantee that automating a sales force will produce good results. An international Data Corp. survey published early last year found that only 6% of salespeople and managers thought their sales force systems were "fine-tuned." Worse, a full 27% rated their rollouts ineffective.

In fact, some information systems managers contacted last week confessed to less-than-stellar results with sales force automation projects.

"About four years ago, we took 286s and Act [a contact management package] and gave them to the salespeople and said, 'Go out there and be more productive than you've ever been in your life.' And to be honest, it failed," said James A. Wellendorf, general manager of IS and technology at Armstrong World Industries, Inc.'s building products operations in Lancaster, Pa.

Waste of money

Wellendorf said a large number of the company's sales representatives did not even turn on their notebooks. That is because "we didn't look at the sales process and say to ourselves, 'How can automation help the process?'"

This has been true generally as companies have thrown money at their sales teams, giving them computers without thinking about training and communications, issues essential to any successful technology rollout.

At Armstrong, the building products operation will next week finalize an automation project using IBM's ThinkPad 755Cs and Aurum Software, Inc.'s SalesTrak package. More important, this time the company sat down with salespeople to figure out how to implement the technology in a way they would find useful.

"I think we've done it right this time. . . . and people in our sales organization are very pleased," Wellendorf said.

Victor Matnick, corporate vice president at New York Life Insurance Co., agreed, noting that his company's experience with sales force automation showed that nontechnical issues are the key. "The most critical thing to a salesman is not to look bad in front of clients," he said.

Ken Dulaney, an analyst at Gartner Group, Inc.'s office in Santa Clara, Calif., said "the big problem is the [end] user" because salespeople are reluctant to use computer technology unless it is part of a strategic sales initiative.

He added that Gartner Group studies show that at the 50% to 60% of companies that automate their sales forces, the top sales representative is someone who does not use such technology. Dulaney attributed this to the fact that the administrative duties that often accompany technology can interfere with selling time.

Sales force benefits

"That hasn't been our experience," said Gary Engel, program manager of sales automation at Fluke Corp., a test and measurement toolmaker in Everett, Wash. Engel said Fluke had some initial problems because of the learning curve but generally has seen increased productivity in the two years since the rollout.

But Engel also said Fluke's first sales force automation rollout was a bust. Fluke picked a custom-development shop with a shell package that it tried to modify for its own use and "failed in that attempt," he explained. The company learned a valuable lesson in the process: Start out simple and build on the project over time. Its current project uses SPS, an account management package from Saratoga Systems, Inc. in Campbell, Calif.

High-tech salespeople

Overall sales force automation market	9.3M users
Number of users automated by off-the-shelf sales force automation packages	1.5M
Number of users automated by packages developed in-house	880,000
Unautomated salespeople	6.9M*

*Not including users with word processors, spreadsheets or order-entry connections

Source: Gartner Group, Inc., Stamford, Conn.

Market maturation

If companies such as Saratoga and Aurum sound unfamiliar, rest assured they are not household names. The biggest company in the sales force automation field is generally thought to be Sales Technologies, Inc., a roughly $50 million division of Dun & Bradstreet Corp.

This could change as the sales force automation field matures and consolidates, according to Barton Goldenberg, president of Information Systems Marketing, a consultancy in Washington.

Goldenberg breaks sales force automation software into the following categories:

- One-function packages such as Act.
- Multiple-function packages with specialized interfaces such as Modatech Systems International, Inc.'s Maximizer Sales Suite.
- Design and prototyping tools that allow for add-on modules.

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CA adds software distribution to Unicenter

By Thomas Hoffman

If the adolescent distributed systems management industry is experiencing growing pains, then Computer Associates International, Inc.'s CA-Unicenter package just added a few pounds to its lanky frame.

Last week, the Islandia, N.Y., software leviathan added three sorely needed technologies to its evolving systems management suite, including a cross-platform software distribution tool and two intelligent agents designed for database and systems event detection.

ICL, the London-based systems integrator that sold the technologies to CA for an undisclosed price, also agreed to ship a free copy of CA-Unicenter with each of its teamserver and superserver groupware products to its predominantly European customer base.

CA has priced CA-Unicenter/Software Delivery at $3,900 for 100 desktops. CA-Unicenter/Systems Alert for Windows costs $2,500 for 100 desktops and $250 for each non-Windows machine. CA-Unicenter/DB Alert, which supports CA-OpenIngres, Oracle Corp., Sybase, Inc. and Informix Software, Inc. database management systems, starts at $500 for a low-end Unix machine.

Value keeps increasing

The software distributioo modules can be used with a handful of CA-Unicenter packages, including those designed for Hewlett-Packard Co., Sun Microsystems, Inc., Data General Corp. and Pyramid Technology Corp.'s versions of Unix, according to Yogesh Gupta, senior vice presideat of open systems at CA.

Would-be distributed systems management customers said electronic software distribution technologies are becoming more valuable as their organizations try to simplify the rollout and management of desktop packages.

ABB Power's Patrick Carney *sees software distribution in firm's future*

For example, ABB Power Generation, Inc. in North Brunswick, N.J., plans to upgrade 600 workstation users with the latest release of Microsoft's Office by having its technicians install the software on each desktop.

Patrick B. Carney, director of information systems at the engineering firm, said he intends to evaluate software distribution packages — like the one being integrated into CA-Unicenter — so his firm can do future software upgrades electronically over its NetWare wide-area network.

"We're too far down the path to change this project, but down the road we'd like to do software distribution so we don't have to send armies of staffers to implement software," Carney said.

Portland Community College in Oregon has been using CA-Unicenter to manage its HP/UX Unix environment since August 1993. It intends to look at CA's new technologies and competitive offerings to reduce the costs associated with software distribution and troubleshooting its client/server systems, said Ray Grant, director of information services.

The technologies are expected to help CA shore up its expanding systems management cache while enabling it to keep pace with competitors. IBM, HP, Tivoli Systems, Inc. and Legent Corp. all offer software distribution in their network and systems management offerings.

Although analysts said CA was addressing major gaps in CA-Unicenter with the software distribution and smart agent technologies, most agreed that distributed systems still have a long way to go before reaching the maturity and stability of mainframe environments.

Jonathan Eunice, an analyst at Illuminata, a Hollis, N.H., consultancy, said CA has done a good job of "hitting all the hot bottons" in client/server systems management. But "it'll take another 10 years to make Unicenter and other packages more automated and refined than what we're seeing today," he added.

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Design tools ease net management

One tool, Optimal Performance, to ship in January

By Steve Moore

As client/server networks become ever more complex, seat-of-the-pants network design is becoming riskier, and network managers are seeking to make their lives easier with new automated network design tools.

One such newcomer is Optimal Networks Corp.'s Optimal Performance, a tool that was demonstrated at industry conferences this fall but is not slated to ship until January.

The new LAN-oriented product uses data from Network General Corp.'s Sniffer LAN analyzers to help users determine, for example, when and where a server should be relocated or how a LAN segment should be divided.

Cautious reliance

While users increasingly recognize the value of automated network design tools, some caution against relying on them too heavily.

"First, you want to think what your network needs to [look like] based on customer input, routing issues and future technology issues," said Peter Ho, supervisor of network architecture and software services at Unocal Corp. in Anaheim, Calif. "Then you can use tools like [Optimal Performance] as an aid vs. using them as core design tools."

Ho said that like automobile design, network design first requires an artistic element based on "experience, creativity, understanding of trends and a general feel for how things run." Only then should the purely scientific and technological aspects of network design come into play, he added.

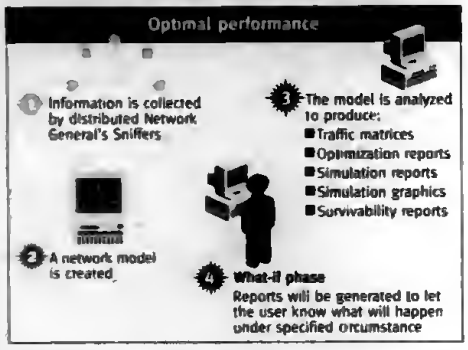
"The only way to do good modeling is to have good data," said Mary Petrosky, an analyst at Burton Group in San Mateo, Calif. "That means you must have some kind of probe on every segment — and that is expensive."

Even if users can afford to deploy enough probes to collect all the hub, switch and server statistics needed for a good statistical sampling of traffic on every segment in their networks, it will take most sites at least two to three years to do so, she predicted.

As users move from traditional shared media LANs to new switched LAN technologies, their design challenges will extend beyond simply determining whether a LAN segment is becoming congested or whether a server should be relocated.

> Design tools are like Sim City for network management — users could become addicted to laying out what-if scenarios."
> Mary Petrosky, Analyst, Burton Group

"The problem becomes much more complex because suddenly you're monitoring 200 segments, not just 10," said Greg Moore, manager of data communications at Black & Veatch, an engineering firm in Kansas City, Mo. Although he used to be able to spend all day looking at a problem using a Sniffer, "today if I have half an hour, I have an eternity," Moore said.



Careful pricing

Moore further warned that even though network managers see the value of design tools in large, complex networks, those tools must be economically priced. Otherwise, managers will recognize that "I can buy another router and throw a lot of bandwidth at a problem for the cost of the software that would tell me to do that," Moore noted.

Optimal Networks is working with Bay Networks, Inc. and Cisco Systems, Inc. to develop device libraries that enable users to model those vendors' products more accurately than with generic techniques, said Steve Holtzman, vice president of business development at Optimal Networks in Mountain View, Calif. Holtzman said Optimal Performance is primarily oriented toward LANs, but it can be used in a complementary way with WAN-oriented network design tools such as NetMaker from Make Systems, Inc., also in Mountain View, Calif.

Optimal Performance will cost about $15,000 for a campus implementation and $25,000 for a larger enterprise version.

Zero downtime, storage remain elusive for NT

By Mary Brandel

■ If you are disaster-proofing a mission-critical Windows NT application, you might be feeling a little lonely. Wood Hargus is.

As a corporate network developer at MCI Consumer Markets in Austin, Texas, Hargus has scratched around and come up with what he calls an "inelegant" recovery plan for the telemarketing application he is building for a dozen MCI sites. The network will include 6,000 workstations and 200 or so servers, all running Microsoft Corp.'s NT and Windows for Workgroups.

No reflection

Server mirroring comes in three flavors, but none is available yet for Windows NT:

Redundant server —	Data is mirrored in real time on a dedicated redundant server
Standby server —	A remote system waits to be brought on-line in case of system failure. Loss of time is seconds to minutes.
Externalized storage —	Software enables the server's files to be available to the network even if the server is not on-line.

Source: Peripheral Strategies, Inc., Santa Barbara, Calif.

"Not by any stretch of the imagination is NT disaster-proof," Hargus said. "While it's very hard to crash an NT system, there's always the chance of hardware going down, and [those] facilities for NT are not very well developed."

A lack of storage

The heart of the problem, Hargus and other users agreed, is a dearth of storage management and fault-tolerant products.

"As people become more and more comfortable with NT, they will demand the same type of reliability that's already being taken for granted in the Unix environment," such as transaction-, system- and network-based high availability, said Tom Kacharvy, president of Summit Strategies, Inc. in Boston.

Hargus settled for Backup Exec from Arcada Software, Inc., the only native Windows NT backup product shipping today. And he located SQL Store from SQL Business Systems in Houston, the only offering he could find for SQL Server backup.

And if it were not for Octopus Technologies, Inc.'s namesake product, Hargus would have no way to mirror files in real time onto another server to recover from a server crash.

That product starts to solve his second problem: "With SQL Server, you can only mirror databases onto the same machine. So you're covered in case of [a disk failure], but there's no system fault tolerance," he said. "We could recover from a disaster in just a few minutes," Hargus added, "but that's just so people can get back to work. We'll be here until 3:00 in the morning getting the original system up and running."

High-availability features

Granted, few sites are as far along with NT as MCI, and not everyone needs such a high degree of fault tolerance.

In addition, Windows NT does provide some high-availability features, such as disk volume mirroring and disk striping with parity, in case of disk crashes.

However, "if you can't afford productivity losses, server mirroring is the only solution," said Michael Peterson, an analyst at Peripheral Strategies, Inc. in Santa Barbara, Calif.

And server mirroring — the ability to duplex files and even the entire system on a secondary server — is possibly the biggest fault tolerance gap in Windows NT.

Observers are optimistic, however, about the future of high availability for NT. Microsoft itself points to clustering, which enables data to be striped across the drives of multiple servers. If one server fails, another picks up where it left off.

AT&T Global Information Solutions, Digital Equipment Corp. and Compaq Computer Corp. are working on NT clustering. So far, Digital is ahead of the game with a planned late-1995 shipment date.

Downtime costs

Redundant servers are not difficult to cost-justify: The typical PC LAN network is down 1% to 2 hours per week, Peripheral Strategies said. If you have 300 users on the server, that adds up to $17,000 per week in productivity losses due to server downtime.

A second area for optimism is in transaction monitors, which ensure data integrity despite system interruptions. Digital, AT&T GIS, Transarc Corp. and IBM have announced plans to ship NT versions of their transaction monitors, Kacharvy said.

In the meantime, users continue to pave their own way.

"We do RAID-5 as well as backup and something similar to what Octopus does in terms of file system replication to a whole other system," said Tom Bernhardt, technology analyst at Star Enterprise in Houston. "We could lose an average of 15 minutes or so, which is bad, but it's not like we have heart pumps attached to our system."

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Management takes center stage at show

By Suruchi Mohan

The E-Mail World conference, which kicks off today in Boston, will focus on the management of electronic mail, collaborative computing and electronic data interchange (EDI).

E-mail management has long been a major issue for administrators who want consistent management across different technologies, said Susan Lebeck, program manager at Tandem Computers, Inc. in Cupertino, Calif., and a speaker at the show. Lebeck will talk about developing strategies to address the problems of dynamic monitoring and message tracking.

E-MAIL WORLD
CONFERENCE & EXPOSITION

Getting the ball rolling

"There is intense interest in management," agreed David Ferris, president of Ferris Networks in San Francisco. Ferris said he expects to see a number of standards groups, such as the Internet Engineering Task Force, work on management issues. "But the discussion will be at the industry level. It will be at least a year before it turns into a commercial" issue.

Rik Drummond, president of The Drummond Group in Fort Worth, Texas, will talk extensively about EDI and the challenges large companies face as they partner with smaller companies and try to get them to use EDI. Network management and support problems accompany the added traffic, which is why messaging is a good backbone for EDI.

The integration of messaging with EDI is extremely important, according to Judy Rosall, a research director at International Data Corp. in Mountain View, Calif. Messaging as well as EDI must be integrated with groupware, and various sessions at the conference will address these needs.

Messaging industry heavyweights are also expected to weigh in. Lotus Development Corp. is expected to make two CC:Mail-related announcements as well as a joint announcement with Digital Equipment Corp. (see story below). Microsoft Corp. is expected to make an announcement jointly with WorldTalk Corp. Not to be outdone, Novell, Inc. will hold two press conferences, one of which will be joined by the member companies of the Message Handling Service (MHS) alliance.

Among the announcements expected at the show are the following:

- Baranof Software, Inc. in Watertown, Mass., will announce Version 2.5 of its MailCheck E-mail management software, which essentially gives users a more friendly graphical interface to the monitoring console.
- National Semiconductor Corp. in Santa Clara, Calif., will announce applications for its PCMCIA-based PersonaCard 100, which will provide more security for messages sent from Microsoft Mail.
- Owings Mill, Md.-based Infinite Technologies will announce its Connect2MS-Mail product, which lets users of Microsoft Mail exchange messages with users of Novell's MHS-based E-mail packages.
- SoftArc, Inc. will announce its First-Class Communications Server, which includes E-mail and conferencing. The product is available on Macintosh and Windows platforms.

MailWorks to add CC:Mail support

Digital and Lotus will announce this week at E-Mail World that Digital's MailWorks server will support Lotus' CC:Mail.

The MailWorks server already supports Microsoft's Mail client. Adding CC:Mail client support gives Digital customers greater incentive to move forward with Digital, said David Whitten, an analyst at Gartner Group, Inc. in Stamford, Conn.

While CC:Mail servers support only about 200 users, making scalability a problem, MailWorks typically supports 500 to 1,000 users. However, CC:Mail is seen as easier to use.

"The benefit for Digital [with CC:Mail] is the same as Hewlett-Packard with OpenMail: They are picking up the installed base of users that have been frustrated with supporting a large number of LAN post offices," Whitten said.

MailWorks servers will let CC:Mail clients natively access a directory service based on the X.500 standard, said Curt Anderson, Digital's marketing manager for messaging and EDI. MailWorks servers will enable native X.500 access over Open Systems Interconnect or TCP/IP networks.

X.500 directory support is gaining favor among large user sites building X.500-based corporate directory services. LAN systems, such as CC:Mail and Microsoft Mail, do not support X.500 yet, so the MailWorks server is one option for those sites, analysts said. —*Suruchi Mohan and Lynda Radosevich*

IBM execs keep on moving

By Thomas Hoffman and Craig Stedman

IBM continues to play musical chairs with its executives.

In the latest round of assignment switches, Robert Howe, general manager of the IBM Consulting Group, has replaced Robert Timpson, general manager of the finance industry business unit of IBM-U.S. On Nov. 17, Timpson was named general manager of IBM-Greater China. He will be responsible for all of IBM's sales and marketing activities in China, Hong Kong and Taiwan.

Joseph Movizzo, who had been general manager of the IBM Consulting Group for Asia/Pacific, will replace Howe.

Howe is returning to his roots in financial services. Before joining IBM in 1991 to head its nascent consulting business, Howe ran Booz Allen & Hamilton, Inc.'s worldwide financial services practice. Since taking over IBM's consulting activities, which include re-engineering and workflow management consulting services, Howe has been credited with helping to foster the unit's ascent to nearly $400 million in revenue.

However, that is about one-tenth the size of the financial services practice that Howe just inherited, which includes the sale of hardware, software, outsourcing and consulting to banks and brokerages across the U.S.

Howe downplayed the potential impact his departure from the IBM Consulting Group may have on the unit's charter. "It's a normal transition," Howe said.

In May, IBM restructured its sales and marketing activities along vertical industries. The company's services and consulting businesses were later aligned to report up through the vertical industry structure. Over its three-year history, IBM's consulting business "has spread throughout the organization rather than living in a cocoon," said Sam Albert, a former IBMer who is president of Sam Albert Associates, a consulting firm in Scarsdale, N.Y.

On-line libel

CONTINUED FROM PAGE 1

tor, and they may not sway the court," said Dan L. Burk, an expert on cyber-law at the George Mason University School of Law in Fairfax, Va. The disclaimer may be worthless if the employee is commenting on a work-related topic, such as a computer specialist blasting a particular computer product.

On the other hand, "If the message was completely outside the scope of the employee's work — in a realm lawyers call 'detour and frolic' — then the employer will not be liable," predicted Neal J. Friedman, a telecommunications lawyer at Pepper & Corazzini in Washington.

Mirguet said reported E-mail problems are rare at Kodak — fewer than one a week — for a company that processes 400,000 messages daily. The cases are investigated by a team that includes the employee's manager and representatives from the legal, human resources and information systems departments.

For Prodigy, the $200 million question is whether the on-line service is responsible for a message posted on its Money Talk bulletin board. The note, allegedly written by codefendant David Lusby of Key West, Fla., disparaged a public stock offering by New York securities firm Stratton Oakmont, Inc.

Higher standard

Prodigy is likely to fall back on the 1991 case of Cubby v. CompuServe in which a federal judge ruled that CompuServe was not liable for messages on its network because it was like an electronic bookstore with no editorial control over content.

But Jacob H. Samansky, a New York attorney representing Stratton Oakmont, argues that Prodigy exercises more editorial control than CompuServe because Prodigy has "board editors" and software that screens for obscene and anti-Semitic messages.

"Prodigy holds itself to a higher standard," Samansky said and, therefore, should have spotted and removed the offending message.

Brian Ek, a spokesman for Prodigy in White Plains, N.Y., said Prodigy's bulletin boards are run no differently than CompuServe's except for electronic scanning for obscenities. He had no comment on other aspects of the case.

Now the case has a new wrinkle. Lusby claims he did not write the message in question and that it must have been written by someone using his old Prodigy account, sources said. Samansky charged that Prodigy was negligent for not retiring that account number in 1991.

Lusby worked at Prodigy as a software manager until 1991 and allowed at least 30 employees to use his "house" account for internal purposes, sources said.

Ultimately, the court will have to decide whether the proper metaphor for Prodigy is a newspaper that has editorial control or a bookstore or telephone company that does not have control, experts said. The Prodigy suit may be the precedent-setting case for on-line libel, Friedman added.

But fear of legal liability could change the culture of the free-wheeling Internet, where uncensored speech is considered a birthright and everyone can be an on-line publisher reaching millions of people.

"That was formerly done by large organizations like newspapers and broadcasters who had the deep pockets to defend against libel suits," Burk said. "Now the small guys are on-line publishers, and the threat of libel suits could have a severe chilling effect."

MCI cuts ribbon on digital mall

By Gary H. Anthes
WASHINGTON

MCI Communications Corp. last week announced a suite of Internet-based services, including on-line shopping in an electronic mall to be maintained by the company.

The service goes further than many on-line shopping services by allowing users to pay for purchases electronically via encrypted credit-card transactions.

The service, called MarketplaceMCI, will be available in January. MCI would not name any of the retailers that will have "storefronts" in the on-line mall,

Vint's Surf Shop *features the father of the Internet himself — Vinton Cerf*

but an analyst briefed by MCI said R. H. Macy & Co., Brooks Brothers, Inc. and Horchow Collection, Inc. will be among the first to open their digital doors.

Blanketing the market

"The scale — the sheer size [of MCI] and their addressing both the mass market and the business market simultaneously — will make a major difference," said Anthony M. Rutkowski, executive director of the Internet Society in Reston, Va.

"They appear to have taken some care in looking at a lot of the problem areas that are particularly important for business," Rutkowski added.

The shopping service is one feature of InternetMCI, which MCI also introduced last week. It offers Internet access, browsing, consulting and other services.

Any user on the Internet may "window shop" in the MCI mall without having an MCI account or paying a fee, said Vinton G. Cerf, MCI's senior vice president for data architectures. But to make a purchase, a user must have MCI software priced at $49.95. The package includes IP software from FTP Software, Inc. in North Andover, Mass., and World-Wide Web browser software from Netscape Communications Corp. in Mountain View, Calif.

"This is the most exciting announcement that has come out since the Internet has been hot," said Jeffrey Kagan, president of Kagan Telecom Associates in Atlanta. "The average small or midsize business that wants to do business on-line, to advertise on-line or to buy on-line can't figure out how to do it."

Kagan said the MCI service could be a boon to companies that have set up Web sites to advertise products only to learn that it is not easy to attract customers.

"That's analogous to opening a single store," he said. "The MCI concept is that of a shopping mall. MCI will promote it so that a business that wouldn't otherwise have the traffic will have the traffic."

MCI teamed with Netscape, formerly Mosaic Communications Corp., to provide the interface between the user and the Internet. Netscape Navigator runs on the user's PC and offers dial-up access and point-and-click navigation around the 'net at speeds of up to 14.4K bit/sec.

The MCI system includes Netscape's Netsite Commerce Server, which represents retail sites and runs on MCI computers. The client and server software use public-key encryption and digital signature technology from RSA Data Security, Inc. in Redwood City, Calif. The security features encrypt buyers' credit-card and purchase information and authenticate retailers' identities.

Should business be banned on the Internet? See page 116.

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5. _____

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CUT ALONG DOTTED LINE

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News Shorts

Chipcom users to swap software packs

Chipcom Corp. last week introduced its Platform Protection Program, which lets users of its Ondemand Network Control System software and related applications migrate from one network management platform to another at no additional cost. The program, available to clients of Chipcom's Software Subscription Service, eliminates the need for users to buy new Chipcom network management applications when changing platforms. Platforms covered by the program include Digital Equipment Corp.'s PolyCenter, Hewlett-Packard Co.'s OpenView, IBM's NetView for AIX and SunSoft, Inc.'s SunNet Manager. The program is expected to become available Dec. 1.

Fidelity names new IS exec

Fidelity Investments Corp. has appointed Bob Madaio vice president of midrange systems. Madaio, who most recently was in charge of East Coast operations for **Comdisco, Inc.**'s Disaster Recovery Services unit, will oversee the relocation of Fidelity's midrange processing environment to a Marlboro, Mass., building formerly owned by Digital.

Apple gets PCI pledges from 20 vendors

Apple Computer, Inc. said 20 hardware developers have committed to developing Peripheral Component Interconnect (PCI) add-ins for the next generation of Power Macintoshes that will house the PCI bus. Those computers are expected by mid-1995.

Vendors rally behind 25M bit/sec.

Support for 25M bit/sec. technology continues to build as several networking companies last week aligned behind **PMC-Sierra**, a subsidiary of Sierra Semiconductor Corp., in submitting a proposal to the ATM Forum for a standard 25M bit/sec. specification. Supporters of the proposal, called UNI-PHY-25, include **Cabletron Systems, Inc., Cisco Systems, Inc., Fore Systems, Inc., Bell Northern Research, Cascade Communications, Inc.** and **DSC Corp.** The forum rejected 25M bit/sec. Asynchronous Transfer Mode (ATM), originally proposed by IBM, as a standard in favor of 51M bit/sec. ATM last year.

Spec under way for phone data transfer

IBM, AT&T Corp., Apple and **Siemens AG** plan to announce this Wednesday that they are developing common specifications for transmitting data over computer networks and phones. Included will be support for a Telephony Server Application Programming Interface written by AT&T and Novell, Inc. for linking computers and private branch exchange phone systems, an IBM spokesman confirmed. Specs for tying mobile computers into networks will be addressed, and users should start to see benefits next year, the spokesman added. Novell and **Hewlett-Packard** are also expected to announce support for the specs.

Covia, AT&T team up

Covia Technologies has teamed up with **AT&T Global Information Solutions** to develop airport, airline and passenger terminal operations management systems. Covia will migrate its OS/2-based ResourceWorks airline system to AT&T GIS' Unix-based System 3000 platform and sell it exclusively on those systems.

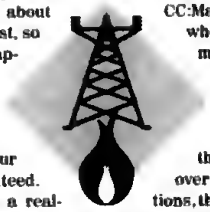
SHORT TAKES The Mutual Life Insurance Company of New York has outsourced its information technology operations to **Computer Sciences Corp.** under a seven-year service contract. . . . **United Parcel Service, Inc.** plans to use **Gupta Corp.**'s SQLBase database and query tools for a new package tracking system expected to go on-line early next year.

Utilities

CONTINUED FROM PAGE 1

able to continue to live in this nice, cozy cocoon."

Jim Fabuda, director of information technology services at San Diego Gas & Electric, echoed those remarks. "If you are not in a competitive environment, you don't necessarily worry about keeping the lowest cost, so you do a cost-plus approach to your customers," he said. "We no longer can operate under a cost-plus basis, where our revenues are guaranteed. Now it's going to be a real-world marketplace."



While utility IS officials seem certain that outsourcers will fit into their plans, they are less sure exactly how to use them — and to what extent they should hand over control of their IS operations.

Baltimore Gas & Electric Co.'s (BG&E) IS manager, Joe Hunter, said he plans to take a selective approach to outsourcing because offloading too much control would hinder the utility's ability to react quickly in a shifting marketplace.

"We would have to go through a third party as we make adjustments to a deregulated environment," he noted.

Hunter said he plans to hold on to control of operations, such as networking, in which BG&E has an operational edge. But the company will probably give up help desk product support because an outsourcer can provide that less expensively, he said.

"I don't want to dedicate the resources to provide support on Microsoft Office, Lotus Notes or CC:Mail when someone else who does that across many companies could do it less expensively than I could," he said.

For PECO's Holland, the decision to hand over mainframe operations, the help desk operation and LAN and desktop administration to IBM's Integrated Systems Solutions Corp. (ISSC) subsidiary in a 10-year, $450 million deal boiled down to a decision to outsource the past while focusing resources to develop the future.

PECO is embracing a number of costly, innovative ideas to buttress its competitive position, she said. For instance, the company plans to replace the ubiquitous meter reader with wireless and fiber-optic connections that would permit the utility to record consumption of electricity from its offices.

It is also considering giving customers the option to permit it to turn home appliances on and off from afar so they could benefit from low-rate, off-peak electricity.

By saving $150 million over 10 years with ISSC, PECO will be better able to afford product and software development, she added.

More to come

In its five-year, $60 million deal with Computer Sciences Corp., San Diego Gas gave up control of mainframe operations. Another shoe could soon drop, however, as the company ponders bringing in an outsourcer to provide client/server development.

"We are doing an analysis of client/server and desktop services to determine what it is we should do with those and what our prices would be vs. buying from the outside," Fabuda said.

As utilities prepare for what the industry calls "retail wheeling" of power from one provider to another and then to the end user, most are busy figuring out how to build appropriate software.

Most billing systems in use today cannot handle the granular accounting that would be necessary to keep tabs on who bought power from whom and at what rates, said Larry Thompson, information technology services manager at Chicago-based Commonwealth Edison Co.

Intuit deal

CONTINUED FROM PAGE 1

picture," said Reback, who led the effort.

No big surprise

Meanwhile, as expected, the Antitrust Division has made a second request for information on the Intuit deal, a Microsoft spokeswoman confirmed. She said the request was not surprising, given that the deal is the largest software firm acquisition in history.

"A second round is not unusual for a deal of this magnitude. It just shows that they're looking at it seriously and not blowing it off," said Gerry J. Elman, head of law firm Elman Wilf & Fried in Media, Pa.

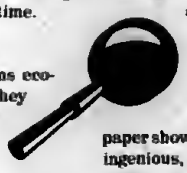
"Clearly, [Reback] wants to keep the pot boiling," said Stephen Caulkins, a law professor at Wayne State University in Detroit, referring to the white paper. It is a shrewd strategy that raises new issues for the Justice Department to consider while putting pressure on Microsoft to be somewhat less aggressive, Caulkins explained.

Reback claimed that the Justice Department requested the white paper to help it understand the full panoply of competitors' technical and marketplace concerns. The department "didn't understand the magnitude and the strategic effect of the Intuit deal and why it was upsetting people in markets that are three steps removed from it," Reback said.

He added that the paper draws on a new doctrine in antitrust economics called "increasing returns," which holds that dominance in one market gives a company an increasing advantage in related markets over time.

Power in numbers

"This increasing returns economics predicts that if they have 5% of this market and they have market power in all of the adjacent markets, then they can leverage into this market, and the ball game is over," Reback explained. He declined to release a copy of the 50-page study.



"This paper explains Microsoft's strategy in detail, and it explains that you cannot understand Microsoft's strategy by looking at each market in an insular fashion," Reback said in a brief interview. "You have to look at it the way Microsoft does — as dynamic and interrelated markets."

He said the study found "these markets are particularly susceptible to what is called tipping, meaning the product that wins is not necessarily the best product, but it's the first product. Microsoft understands this real well."

Reback returned to a familiar complaint of Microsoft rivals.

"He who controls the [desktop] operating system, which now is Windows, controls everything above it because you can't make an application that won't run with Windows. And Microsoft, by controlling Windows, can instantly obsolete your product. If you're Lotus or Borland or WordPerfect, you've got no market power there."

He contended that the paper shows "Microsoft has a very ingenious, integrated strategy to take control of all this."

What makes that illegal and not just great business acumen?

Reback said the Intuit merger should be blocked if it would diminish competition, according to federal antitrust law. More generally, a second law against "attempted monopolization ... says you're supposed to deal with the problem when it's in its ineipiency," he said.

The current Microsoft antitrust settlement came far too late to help rival operating systems vendors, Reback said, so now the industry has given the government a road map of where Microsoft is headed in the future.

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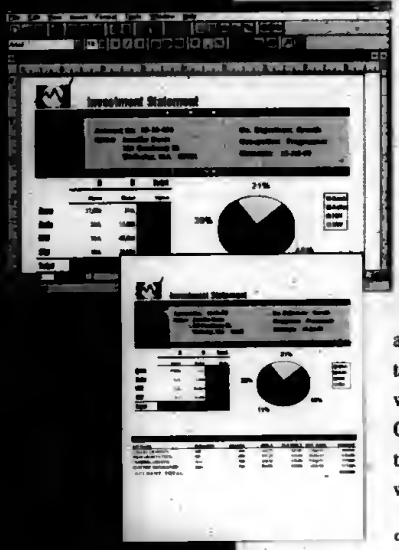

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Wireless vendors expanding role

CDPD scores first successful interoperability test

By Michael Fitzgerald
LAS VEGAS

Wireless data service providers have started to figure out that wireless really is different than wired. And that bodes well for users frustrated in their efforts to roll out wireless technologies in their companies.

Two vendors chose Comdex/Fall '94 to reveal strategic shifts that will move them away from selling only network access and toward a more integrated, hand-holding role with customers.

"It's become clear to us that if we just tried to push bandwidth, the market would continue to grow slowly," said Kendra VanderMuelen, vice president and general manager of McCaw Cellular Communications, Inc.'s wireless data division.

McCaw announced its AirData Solutions Program, a distribution and channel program to improve the integration of its Cellular Digital Packet Data (CDPD) network with third-party suppliers.

One step toward this was evident at Comdex, where a number of systems integrators and value-added resellers showed applications they had developed to work over CDPD. Among these were Lante Corp., which showed a CDPD-compatible version of Notes, and Perot Systems Corp., which is adapting its financial applications for CDPD.

Also, RAM Mobile Data USA L.P. rolled out new devices, modems and development tools. It also improved its network.

Both RAM Mobile Data and McCaw have some of the products ready now and expect to ship the remaining ones within the next two quarters. The announcements address user issues such as the lack of choices for peripherals, arcane development procedures and ease-of-use difficulties.

So far, wireless carriers have focused on selling only their network services, much as regional telephone companies do.

But this approach has stuck customers with the job of integrating various pieces of the wireless picture on their own. That can be a highly frustrating task, users and analysts agreed, because peripherals and applications do not interoperate between the different wireless networks.

Just a few

Despite making progress on their networks, CDPD vendors will have only a handful of areas up and running. For example, GTE expects no more than two, while McCaw will have only six.

Recognition that a failure to integrate service offerings is hurting them in the market drove the announcements, vendor officials said.

The right direction

"RAM [Mobile Data] is figuring out that to get wireless out in the market, they have to do things that are not typical of a network provider," said Andrew M. Seybold, editor in chief of the "Outlook on Mobile Computing" in Brookdale, Calif.

Another step forward for CDPD last week was the first successful interoperability trial. GTE Personal Communications Services and Ameritech Corp. announced they have achieved interoperability between their networks in San Francisco and Chicago.

"It's about time," grumbled Lee Nolan, a senior telecommunications engineer at Travelers Insurance Co. in Hartford, Conn.

This is significant because even though different carriers will operate the wireless networks, interoperability is key to establishing a national network.

Still, there is much to criticize, analysts said.

"Wireless data has a real uphill battle ahead of it," said Kurtis R. King, an analyst at Montgomery Securities in San Francisco. "[Vendors] have a real need to sell integrated services, rather than just a network.... It's going to take longer than they think."

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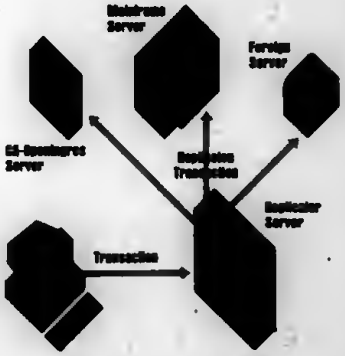

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Enhanced PC servers target enterprise

By Jaikumar Vijayan
LAS VEGAS

Big iron could soon find itself with much more company in the glass house.

Two weeks ago at Comdex/Fall '94, vendors showcased an emerging class of high-performance PC servers based on a wide variety of processor classes, non-proprietary architectures and shrink-wrapped software. Users agreed that such enhancements could finally launch PC servers into the upper echelons of the enterprise.

"I think they are ready," said Kim Johnson, owner of TMC Personal Computer Services in Sun Prairie, Wis. A consultant to a large livestock business, Johnson said he was looking for server platforms to which he could migrate his clients' mainframe applications.

"The disk space is there, the backup performance is there, the software is up to it. It is the way to go now. It's just too expensive to have a mainframe," he said. Instead, Johnson said he hopes to find a "cost-effective, reliable, fault-tolerant way" to deploy his clients' mainframe applications on a PC server platform.

Another user who has decided to migrate all his business-critical applications off a minicomputer platform to PC servers is Lane Fawcett, director of Bonneville Information Systems. The firm handles IS functions for Bonneville International Corp., a television and radio station owner in Salt Lake City.

Fawcett said he has few doubts about the platform's potential to handle his workload, which includes program scheduling. He said he was hoping PC server vendors would assure him of the platform's reliability and availability.

"After all, in this business you can just imagine the consequences of having something like 30 minutes of dead air," he said.

Challenging times

Compaq Computer Corp. has dominated the PC server market, but it and other PC vendors face the challenge of establishing credibility in more business-critical environments, observers said.

As hardware vendors try to leverage the PC business model in the more business-critical midrange market, they will need to address crucial issues such as these, observers said.

In the short term, though, users can expect to see a flurry of low-cost PC server alternatives that incorporate midrange functionality such as sophisticated systems management capabilities, higher throughput and better data protection. Higher availability, reliability and cross-platform connectivity are also key, said Tony Levy, director of product marketing at NEC Technologies, Inc.

Technological advances

Technologies highlighted at Comdex by companies such as Digital Equipment Corp., Hewlett-Packard Co., IBM, Dell Computer Corp., NEC, AST Research, Inc., AT&T Corp. and NetFrame Systems, Inc. included the following:

- Error correction code memory and parity memory for higher data integrity.
- Optional redundant arrays of inexpensive disks support for data protection and redundancy.
- Symmetrical multiprocessing.
- SCSI and Peripheral Component Interconnect local bus technology for high-bandwidth, processor-independent expansibility.
- Systems and asset management software.
- Clustering of multiple servers.

"The days of people being locked into a single vendor, which was the hallmark of midrange systems, is over," said Carl Everett, a senior vice president at Intel Corp.'s microprocessor products group. As technologies such as these become more prevalent, he added, PC vendors will be able to increasingly scale up the enterprise.

But first, vendors will have to help users optimize and manage client/server environments, said Michael Coleman, general manager at IBM PC Co.

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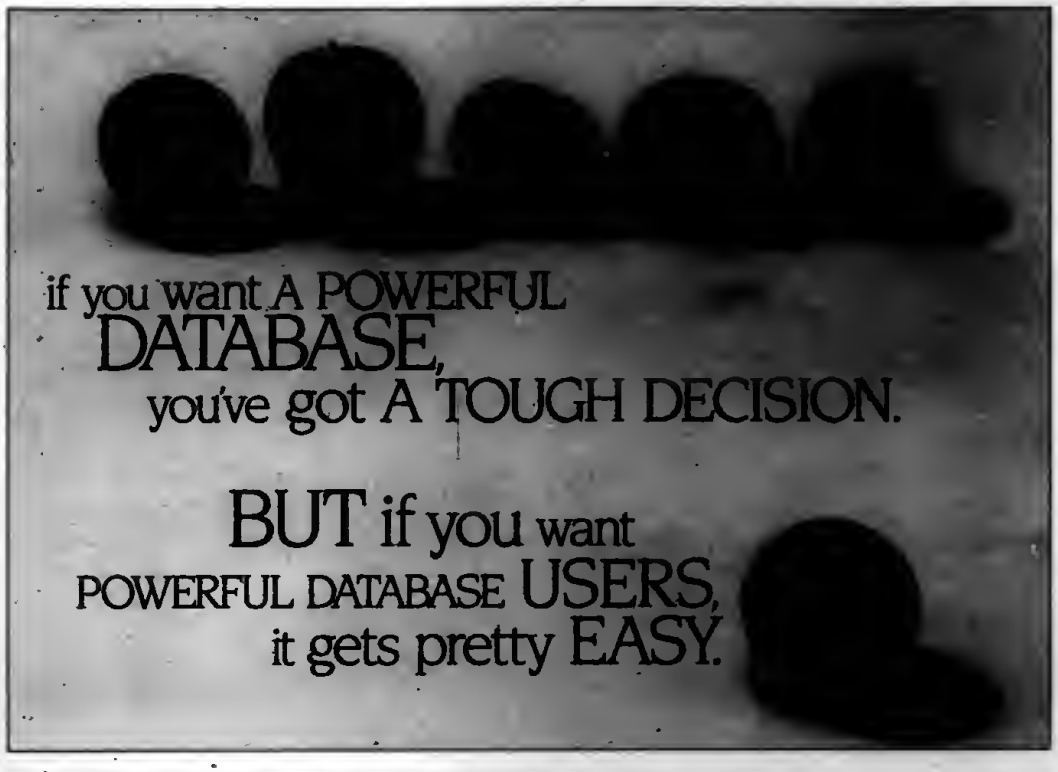

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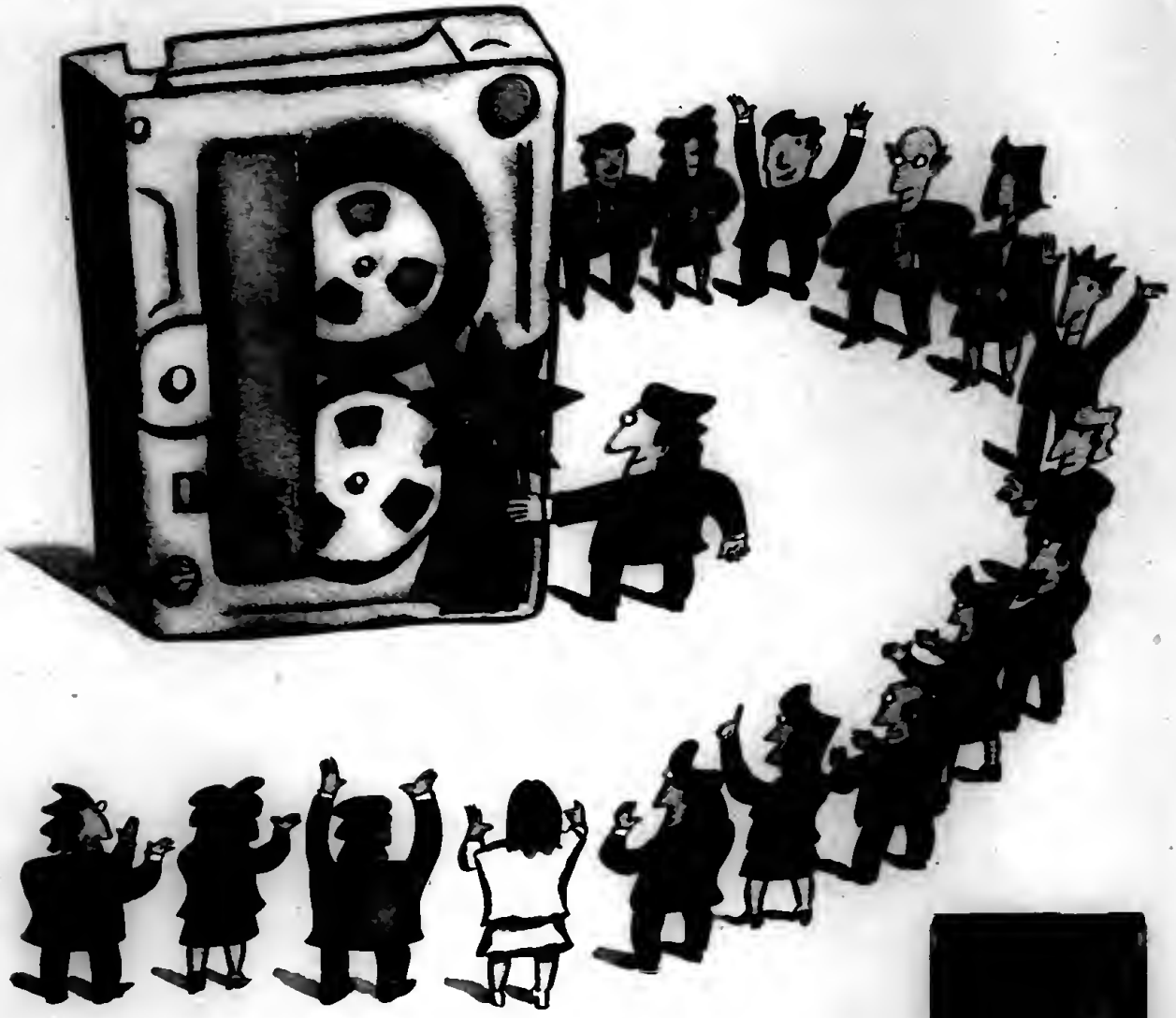

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Digitized art gallery paints retail's future

By Julia King

■ A New York art gallery owner turned high-tech entrepreneur has developed a turnkey computer system that enables art dealers to substitute information for inventory, and thus save hundreds of thousands of dollars in shipping and carrying costs.

In developing and launching his ArtView system, Ken Nahan has also emerged as a front-runner in a technology that could soon change the way real estate, clothing, cars and other goods are bought and sold, analysts say.

"The intrinsic value of this kind of system is that it lets the customer create their own way of shopping," said Jim Gilmore, a partner at the Cleveland office of CSC Consulting Group.

"Short term, this is about reversing the supply chain," Gilmore said. "But eventually, it will eliminate the supply chain."

Easy sales

ArtView, which comprises interactive software written in C and C++ on a Macintosh, enables gallery owners worldwide to call up thousands of digitized images based on customers' individual preferences. Images are stored on a Sun Microsystems, Inc. workstation in an ACI US, Inc. Fourth Dimension relational database maintained by Nahan's company, New York-based HoniCorp, Inc.

Using ArtView, a Memphis buyer interested in 19th century drawings priced at less than $10,000 enters those criteria into the system. ArtView then pulls up images and information about all pieces that fit the request. It also furnishes information about the artist and the value and sales history of other works.

Should the customer decide to buy, ArtView completes the sale electronically over an integrated private transaction network. From there, the artwork is shipped directly to the buyer from the gallery of origin.

"What we're doing is providing any gallery the ability to reduce overall inventory costs," which can range from $6 million to $15 million, said Douglas Scott, HoniCorp's acting president. "We're also providing mom-and-pop shops with the ability to tie into inventories of major galleries."

Additionally, ArtView enables gallery owners to market directly to regular clients by creating customized catalogs based on customers' preferences. Currently, galleries must stock hundreds of expensive paper catalogs with photographs of artwork that other dealers carry, and customers can spend hours or even days searching. Scott estimates that about 60% of all artwork is purchased from catalogs.

Ken Nahan's ArtView *could change the way retail goods are bought and sold*

Retail boon

For retailers in other businesses, ArtView represents a working example of a substantially more efficient and cheaper way of doing business, according to Bob Delaney, a logistics expert and executive vice president at Cass Information Systems, Inc. in St. Louis. "It just doesn't get any better than when you can hold inventory in one location and not get into issues of depreciation, overstocking and obsolescence," Delaney said.

Gilmore, meanwhile, said the technology has the potential to eliminate retailers altogether, as systems such as ArtView are put directly into the hands of consumers using PCs. "This kind of networking and interactive technology allows a single person to be in more than one place at a time," he said. "That eliminates the need to visit retail outlets one at a time."

ArtView is not without its critics, however. Among them is E. William Judson, president of Judson Art Warehouse, Inc., a national art storage and shipping company that operates a 150,000-sq.-ft. storage facility in Long Island City, N.Y.

"It's not the way fine art is bought and sold," Judson said of the electronic method. Many art buyers like to think they are making a good investment, he noted, "and good investments are not made by viewing thousands of digitized images."

Currently, two galleries are beta-testing the system, which is slated for rollout to 40 more galleries in January, Scott said. He estimated that 60 to 100 galleries will be on-line to a database containing 50,000 to 70,000 digitized images by the end of next year. Galleries will pay $1,200 a month to tie into ArtView.

Another Fine Arts organization adopts technology: the San Francisco orchestra. Page 93.

Burnett's Stars and Comet fill traditional IS 'black hole'

By Kim S. Nash
CHICAGO

A "Stars" was born recently at Leo Burnett Worldwide, Inc.

The advertising agency, one of the largest in the world, has increasingly felt the need to step up its information systems efforts as younger agencies have shown themselves unafraid to take technology risks.

Out of that need grew the Spot Television and Radio System, or Stars — the agency's attempt to walk on the IS wild side. The client/server application was built on Sybase, Inc. databases to track advertising methods, media and resulting sales for Burnett's 34 global clients.

At age 59, Burnett may be a granddad in advertising circles, but the firm is not doddering or wheezing. With its U.S. counterpart, Leo Burnett Co., the worldwide agency pulled down $4 billion in revenue last year.

Users stay with an apple a day

When Leo Burnett opened its doors in 1935, a bowl of apples was put out for visitors, starting a company tradition. Last year, the agency gave away 758,000 apples.

Stars' sidekick

Yet when it came to creating Stars, in-house developers knew that the resulting 40G-byte system would be too big and expensive to deploy at each of Burnett's 60 offices worldwide. So the company brainstormed a novel solution to a client/server problem that plagues other large companies struggling to distribute applications: It created a thinned-to-the-bone version of Stars that cut out some of the more sophisticated analysis functions and made it more portable.

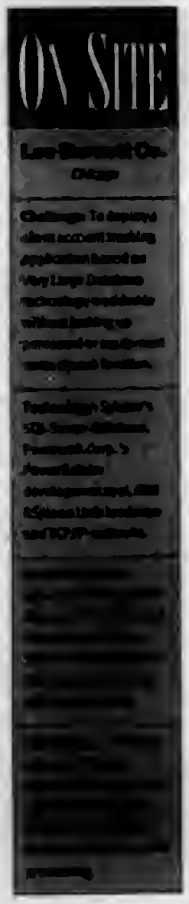
Thus, a skinny, 20M-byte, LAN-based companion to Stars — called Coordination of Media and Expenditure Tracking (Comet) — will be installed at major offices in Europe and Asia by early next year. In essence, Comet is a global sidekick to Stars.

The system was designed to give local users information they need but allow access to the Stars mothership, said Rajinder Gupta, director of information management. For example, users can track current so-called "agency of record" data on media campaigns on Comet but have to dial into Stars to request historical information for a given account.

Comet also means that Burnett does not have to hire and train 60 database administrators on the intricacies of Stars — not to mention buy the required IBM RS/6000 Unix-based hardware and Sybase software for each location.

"It's just too much money to do something like that," Gupta said. He declined to estimate what those costs would be. But salaries for database managers alone average $58,453, according to *Computerworld's* 1994 salary survey [CW, Sept. 5].

A key goal of Stars and Comet is to give users an idea of which advertising methods pay off and which bomb. This is valuable information for clients such as Philip Morris, Inc., McDonald's Corp. and Procter & Gamble Co.



Faster, more accurate

For example, if Procter & Gamble buys commercial time on Korean TV stations to hawk dish soap and runs a coupon promotion in Costa Rica's *Tico Times* newspaper, Burnett account managers can now show their client which vehicle was more effective and why. And they can do that a lot faster now than six months ago.

Users previously tracked this information via a combination of PC tools and a gabby creative staff who regularly exchanged information. Queries were answered via batch reports that could take anywhere from a few hours to a week or two to run. By mid-1995, 2,000 users are expected to be on the systems.

Now, most queries are answered in one to two seconds, although the system may take as long as "several minutes" to respond to some of the more complicated questions, Gupta said. Bills can also be cleared for payment on-line now rather than via overnight processing, he said.

Burnett can also use Stars to squeeze better rates from media outlets such as MTV or CNN.

The scope and ambition of Stars and Comet stand out in an industry where IS has traditionally been viewed as "a black hole," said Nick Rudd, chief information officer at advertising rival New York-based Young & Rubicam, Inc.

Until recently, ad executives saw technology as "a cost to be borne, rather than an investment to be managed," Rudd said. He started an IS committee within the American Association of Advertising Agencies in July 1992 to help ad executives understand how critical technology will be to winning and keeping new business in the near future, he said.

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Computer Industry

Briefs

End of an era

Former chairman Raymond Noorda, 70, retired last week from Novell, Inc., although he remains the firm's largest shareholder. WordPerfect co-founders Alan Ashton and Bruce Bastian replace Noorda on the board.

Plaintree's sales off

Plaintree Systems, Inc. has cut projected revenue for fiscal year 1995 to $29.4 million and projected profit to $505,000 because a higher proportion of sales are now expected through OEMs at a greater discount. Plaintree had earlier projected $37.8 million in revenue and a $4 million profit.

Computone on track

Computone Corp. revised its results for the second quarter of fiscal year 1995 ended Oct. 7. Last week it reported revenue of $4 million compared with $3.2 million in revenue for the same period last year. Profits rose to $436,000 from $139,000 in the same period last year.

Autodesk improves

Autodesk, Inc. reported revenue of $108.2 million for the second quarter ended Oct. 31, up from $98.2 million for that period last year. The firm posted a $15.9 million profit compared with a $14.9 million profit for the same period in fiscal year 1993.

SHORT TAKES Decision-support software vendor Metaphor, Inc. will auction all its equipment and furnishings at its software development facility in Mountain View, Calif., on Dec. 1. . . . Claiming no liability, Applied Magnetics Corp. will distribute $1.25 million in common stock and $2.75 million from its insurance carrier to people who purchased the company's common stock between October 1992 and October 1993 to dismiss a 1993 securities class action lawsuit. . . . Systems integrator Logica North America, Inc. will change its name to Logica, Inc.

AST makes plans for happier new year

By Jaikumar Vijayan

AST Research, Inc. would like nothing better than to put 1994, a year in which little has gone right, behind it.

Delayed or missed product announcements, near-stagnant growth in the U.S., the shuttering of one of its manufacturing facilities and a significant layoff have all contributed to a less-than-stellar year for the PC maker.

After posting its second successive quarterly loss, AST is shifting its strategy to help regain some lost territory, according to Safi Qureshey, chairman and chief executive officer. "After going through a period of 60% to 70% growth, this has been a period of looking back, of catching our breath and regaining some of our focus," he said.

Observers contend that AST may have spread itself too thin in terms of product offerings and business strategy. They point to the company's acquisition of Tandy Corp. last year as one example of AST's focus meandering from its principal strengths in engineering and manufacturing.

AST Research CEO Safi Qureshey: *outlines aggressive plan to regain focus*

Good and bad

Despite two straight quarters in the red, AST's worldwide growth rate of 26.6% has been on par with the industry average of about 15.8%, according to International Data Corp. (IDC). However, AST's U.S. growth rate of 1.8% has been near-stagnant compared with 14.4% U.S. growth overall, IDC said.

Step by step

Qureshey outlined the following measures AST will take to get back on track:

- Reduce brand and product clutter by drastically pruning the number of its desktop, portable and server models by about 50% by first-quarter 1995.
- Cut time to market and time to volume. The company has missed product introductions throughout the year and hopes to resolve the problem with a smaller product portfolio.
- Focus primarily on the high end of the consumer and business segments and commit to bringing "fewer key products" to market.
- Increase emphasis on a design-to-order and build-to-order business model.
- Continue consolidation of AST's distribution base, with a focus on marketing through large regional and national resellers and distributors.

AST, which has discontinued manufacturing pen-based products and subnotebooks, will further pare its products to those based on high-end Intel Corp. Pentium processors and a couple of Intel 486 processors. Several of the company's configurations based on these chips will stop shipping by the end of the year. Similarly, AST also plans to reduce its hard drive offerings from eight memory sizes to three: a 1G-byte version, a 540M-byte version and a 270M-byte version.

Part of the consolidation will also include a rationalization of the company's brands. For example, instead of having several server brands, AST will fold them all into its Manhattan family. On the notebook side, the company is already de-emphasizing its Bravo and Advantage lines and turning customer focus to its Ascentia line. A similar brand-unification strategy is under way on its desktop and notebook products, too, sources close to the company said.

Whatever the turnaround plans, the next few quarters could be crucial for AST, analysts said.

"The company's position is among the leaders in the industry. Unfortunately, they have had trouble executing. They have been falling off because they can't seem to make it all work," said Richard Zwetchkenbaum, an analyst at International Data Corp. in Framingham, Mass. "They are trying to play like a top-tier vendor. Ultimately, they are going to have to project that image," he said.

Lotus Institute takes Notes on use, influence of groupware

By Lynda Radosevich

After years of hawking Notes as the software solution to teamwork communication issues, Lotus Development Corp. has decided to actually study those issues. The findings, Lotus said, will help it further develop its bellwether groupware product.

The ongoing research will be conducted by a recently launched group called the Lotus Institute. Composed of 17 Lotus employees, plus a handful of analysts and customers, the Lotus Institute plans to research high-level people management problems to see how information technology can help improve organizational performance. Of course, Lotus' ultimate goal is to better develop and promote Notes.

Clinical psychologist Chris Newell *heads the Lotus Institute*

But this is more than just a bald-faced marketing ploy, according to observers. The institute is led by Chris Newell, a clinical psychologist. Lotus also bought last summer The Human Interface Group — a technology consulting company with psychologists and management consultants in its ranks — to help launch the institute.

Lotus officials said they have been surprised by the ways in which people are using Notes. Many of the biggest Notes sites claim the groupware has helped change the structure of their organizations by distributing knowledge and expanding communication. For instance, an employee is more likely to send the president electronic mail than call him.

"We found, through our own use and from discussions with customers, that Notes has the potential to affect the DNA of an organization, and we decided that it's in our best interest to understand why," said Newell, executive director of the Lotus Institute.

In addition, the institute plans to work with specific user sites, beginning with Hoffman Laroche in Germany, to craft specific applications for the company's needs. Unlike application development techniques, which tend to throw technology at specific business problems, the institute plans to first observe and document how people work together and then shape an application to augment employees' natural working patterns.

Cutting edge

The Lotus Institute manifests an emerging mode of thinking in the high-tech industry, according to Larry Prusack, a principal at Ernst & Young's Center for Business Innovation in Boston.

Richard Lester, vice president of information services at Associated Grocers, Inc. in Seattle, a Notes site, said the research could help Lotus better describe the enigmatic concept of groupware while also improving Notes. "I'm not much of a touchy-feely type, but it might be very useful," Lester said.

Lotus is not alone in its desire to study the intersection of people management and communication technology issues. Managing the "intellectual capital" that emanates from knowledge workers — usually in electronic document form — is increasingly becoming a hot topic, according to analysts.

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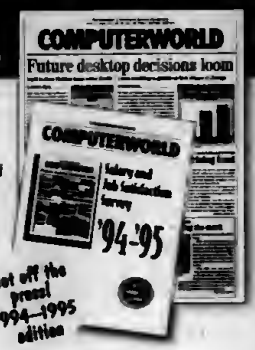

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Pondering pachyderms

By now, everyone of voting age has expressed his shock/delight/amazement at the outcome of the recent midterm elections.

And with apologies to our adjoining editorial cartoon, I call your attention to our poll last week in which IS managers overwhelming approved of the outcome, with a clear majority saying the Great Elephant Walk is good news for high tech.

Also, the chiefs of most vendors are no doubt still shaking off their postelection celebratory hangovers. And why not? The Democrats have always expressed more faith in big government than in free markets and have governed accordingly.

Business is licking its chops, believing that from now on, it won't be business as usual — as least not the way it's been dictated during the last 40 years of Democratic congressional leadership.

Really? Consider this anecdote. I met this guy recently who, in a former life, ran a large farm in North Carolina. Among the crops in his quasi-communal, all-organic Eden was the curse of Sir Walter Raleigh — tobacco.

Why? Because after the tobacco was harvested and dried, he said, "someone would come and pick it up. Then the government would send us a big check." The money was courtesy of U.S. Sen. Jesse Helms, whose support for subsidies ensured that tobacco and all its wonderful benefits would remain a part of American life. That's *Republican* Sen. Jesse Helms.

Whether a pig is dressed as an elephant or a donkey, it will seldom pass on a meal at the federal trough and the scraps that fall to his constituents.

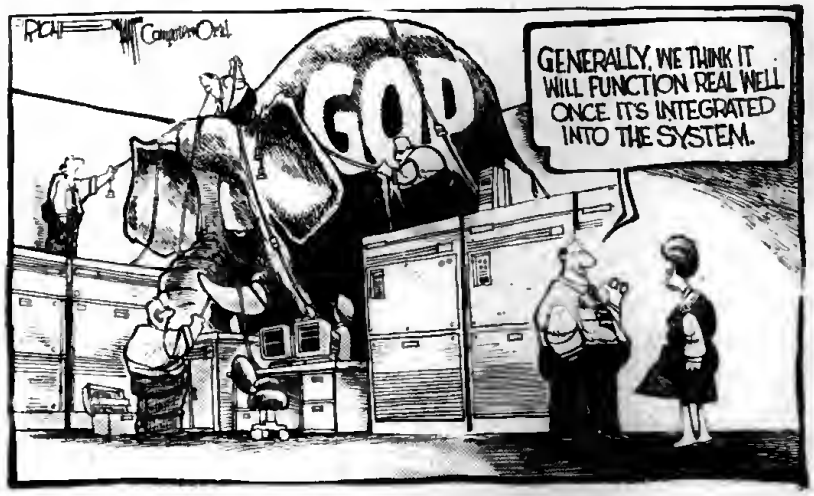
So people in high tech must push the new leadership to pursue changes that actually have a chance of ever earning. Here are some suggestions:

- Make sure any breaks for business benefit not only the company but also American workers. Tie tax credits and other relief to creating jobs domestically. What's good for business is not *necessarily* good for America.
- Subject major government-backed high-tech R&D outlays (nondefense) to approval or at least review by an ad hoc committee of private sector executives. Why should we think the federal government is all-knowing when it comes to allocating scarce R&D?
- Protect U.S.-made high-tech products from unfair import policies abroad. This of course means cleaning up our own warped policies, like the one imposing 25% duties on light truck imports in order to prop up Detroit.
- Assist in the construction of the information highway by making certain there are no outdated government regulations in the way. In other words, help clear the trees and boulders, then get out of the way.

Much of the campaign rhetoric will just go up in smoke. The least the high-tech community can do is push the new order to stand and deliver on issues of real substance.

Bill Laberis

Bill Laberis, *Editor In Chief*
Internet: *blaberis@cw.com*



Bundle bashing

Carole Patton seems to think the practice of bundling applications with operating systems is wrong ["Bundles are bad news," CW, Nov. 14]. Apparently, when operating systems vendors do this, they have an unfair advantage over other vendors.

She also suggests that the federal government should be involved. What's next? Perhaps a U.S. Justice Department review board to oversee all software modifications and ensure that the functionality of all new software releases does not conflict with any existing software packages. How horrifying!

The feature sets of applications and operating systems are constantly growing, putting third-party developers on notice. A third-party developer is locked out only to the extent that the enhanced software is successful. If the feature-limited version of Microsoft Office locks out third-party vendors, it is because of the quality of Microsoft's software and the ingenuity of its marketing.

David Michael Bernard
New York

Medical database might mislead

I like the idea of being able to access information regarding medical treatment so I can make an informed decision ["Data debased," CW, Oct. 10]. But medical information, unlike records on child molesters, is very complex and often confusing and/or misleading to the layperson.

You cite a *Boston Globe* report that "a very small percentage of doctors account for a very large percentage of malpractice claims." Did that report consider that some doctors work in emergency rooms, where resources and time restrictions increase the error rate? Or that certain specialties (obstetrics/gynecology, radiology) have enough ambiguity to leave the door open for frivolous lawsuits? Or that some doctors avoid difficult cases for fear of lawyers?

If a doctor database can assure that no user is misled, fine, but I do not think it is as simple as the Clintonites would have us believe.

Charlie Perrell
Los Altos, Calif.

Mac isn't the only proprietary choice

The Macintosh has been universally criticized for being different, toyish and — worst of all — proprietary. Well, isn't a Microsoft PC just as proprietary? Microsoft wants to control both sides of the hard/soft divide (e.g., new Plug and Play initiatives for Windows) for the same reasons Apple does: They can then concentrate on making things work better instead of merely making them work.

If having open hardware is so important, then why do 80% of PCs come loaded with Windows? What's so great about the "open" PC? It's cheap, but even if the hardware cost five times as much, it still wouldn't approach the staggering support costs.

The Microsoft folks have their own proprietary object model, their own proprietary messaging system and most of all, their own proprietary API. Choose Windows and you lock yourself into Windows apps; choose the Macintosh and you lock yourself into Macintosh apps. If anything is proprietary, the Microsoft PC is. You can't ignore the Macintosh because of its own proprietary nature.

David L. Neumann
Houston

It's alive

Your editorial on Intel's depiction of the 1486's being near death ["Wait out Pentium," CW, Oct. 24] was right on the nose. It is obvious that Intel wants to put a lid on the 486 and move to the Pentium. It also appears that some vendors are jumping on the "let's kill the 486" bandwagon. Dell's portrayal of a bloody 486 chip in a recent ad definitely fits Intel's strategy.

Keep up the good work.

Richard A. Stephens
President
The Information Center Co.
Eagan, Minn.

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COMPUTER PRESS ASSOCIATION

■ Computerworld welcomes comments from its readers. Letters may be edited and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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To play or not to play, that is the PC question

Larry Runge

The advent of the PC has forever changed the simple life in regard to corporate information technology. Ah, for the old days when you could go to the CEO and tell him-that you needed a paltry $50 million for the latest supercharged Colossus/HAL9000 mainframe and a couple thousand terminals to go with it.

Yes, those were the days my friends. There was no doubt in anyone's mind that you were requesting tools solely for business purposes because you couldn't do anything else with them. In fact, there wasn't anything you would *want* to do with them. Computers were too cumbersome to play with, and people who actually loved them went into the scientific arena and worked with minicomputers.

No, the people working in corporate information technology groups did so for the following reasons:

- They liked the starched white shirts and narrow black ties.
- They had masochistic tendencies that allowed them to enjoy the pain that unyielding, monolithic mainframes inflicted on their lives.
- Their college counselors told them they would make more money working in the computer field than they would as high school physical education teachers.

Alas, nevermore. First, the Apple and then the ubiquitous vanilla IBM PC slipped into corporations through dark channels and our once-ordered lives changed forever.

You see, the problem is that the PC has a schizophrenic nature: It suffers from dual personalities. It's sort of a technological Jekyll and Hyde, if you will.

In persona one, the PC is a business tool with incredible power. Its price/performance ratio will make even the boldest of mainframes blush in shame. Let's admit it, comparing a PC to a terminal is similar to comparing a Maserati to an ox cart. The PC is truly driving the information revolution.

The problem is that the PC has a schizophrenic nature, being a powerful tool and a marvelous toy.

Yet in its second persona, the PC is also a toy. You can play the most incredible and exotic games on it or listen to your favorite Stone Temple Pilots CD through it. And for an exceedingly large number of us, the darned things are just plain fun to fool with. Aye, there's the rub.

Now, not only is budgeting for PCs harder than trying to catch a greasy armadillo in a room full of Texans, but you're also never quite sure if the people requesting them want them as a tool or a toy. Microsoft even ships games with Windows.

Few can deny that the best way a neophyte can overcome computerphobia is by playing one of the many fine games available, yet at some time the games must end and the business must begin. But add hundreds of screen savers, which look suspiciously like computer games anyway, to the game-playing going on during lunch hours and the tool/toy issue becomes very cloudy indeed.

No wonder chief financial officers are starting to view all PC requests with skepticism. Hmmm, I wonder if physical education teachers have these problems.

Runge is chief information officer at Wheels, Inc. in Des Plaines, Ill.

The "right" way to wire NewtNet

Michael Schrage

It would figure that after the biggest electoral earthquake in 40 years, at least a few of the aftershocks would be digital. The next speaker of the House promises to post pending legislation on the Internet. The political agenda may be conservative but the technology is not. Call it NewtNet.

This new Republican majority isn't about to turn Al Gore's metaphorical — *all together now* — information superhighway into a digital dirt road. The Republican leadership may reject the Clinton administration's vision of a National Information Infrastructure (NII) — don't you feel just a teensy bit sorry for all those multimedia moguls and civic-minded computopians who agreed to serve on that blue-ribbon NII committee? — but they are just as concerned about the information superhighway as the most digitized Democratic infonauts. In fact, telecommunications reform is almost certain to be a priority for the next Congress.

To be sure, there is a touch of irony in Newt Gingrich's immediate embrace of the Internet. By any honest assessment, the Internet is the product of precisely the sort of technocratic vision that conservative Republicans claim to despise. A brilliantly birthed Cold War baby boomer, the Internet has evolved into a classic example of a successful "dual-use" technology spin-off. This national security technology has effectively framed the civilian standard.

The guts-ball move of a Gingrich-led Congress should be to shut down all direct and indirect government funding of the Internet and let market forces define how the Baby Bells, AT&T, MCI and the cable companies should create interoperably transparent multimedia standards. That's not going to happen. In fact, most Republicans are just as concerned with infrastructure issues as Democrats are. Infrastructures are one of the key ways that nations define themselves.

Remember, the original U.S. network of superhighways was the 1950s product of President Dwight Eisenhower, who had most unpleasant memories of navigating an unpaved America during his post-West Point commands. The country committed billions of dollars to building highways as essential to the national security.

Of course, the huge difference between mixing concrete and laying fiber isn't just in the material. Taxpayers unambiguously funded our highway system; the issue is considerably more complicated for our networks. The Baby Bells and cable companies are all regulated entities with the hots for one another's business. They've been quasi-public/quasi-private industries. So who's going to pay to pave the information highways? The ratepayers? The investors? Does the government get to call the shots if it's not signing the checks?

The Clinton administration wanted to assume a leadership role in setting the standards and defining the rules for the nation's multimedia infrastructure. You can make book that the Republican alternative will be to deregulate first and then see what happens. Worried about antitrust abuses and predatory competition? Don't forget which administration enacted the most sweeping "industrial policy" of the post-War era: Ronald Reagan's. His antitrust department dropped the IBM antitrust case and successfully dismembered Ma Bell. Looks pretty darn good in retrospect.

So will telephone company deregulation look like S&L deregulation? Airline deregulation? Or will it evolve on a path uniquely its own? If the lessons of the past are any guide, chances are the Internet will be as much of a model for government involvement as a medium for the new majority's messages.

Schrage is a fellow at the MIT Sloan School Center for Coordination Science and the MIT Media Lab. His Internet address is schrage@media-lab.mit.edu.

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An interview with Bill Gates

Microsoft chief discusses Windows NT, Windows 95, PowerPC and the future of his company

At Comdex/Fall '94 in Las Vegas, Microsoft Corp. Chairman and Chief Executive Officer Bill Gates took time out from giving keynote speeches, introducing new products and making deals to chat about the industry with *Computerworld* senior editors Stuart J. Johnston and William Brandel.

CW: What major chief information officers do you look to for guidance to help define where Microsoft's corporate strategy is going in terms of Windows NT, Windows 95 and the BackOffice server suite?

A: We're doing this IS road show where we're out in major cities having IS people asking us about Windows 95 and giving us their feedback about Windows 95, and that's going super well. We ask customers if they're willing to go ahead and fully upgrade all of their machines to Windows 95 before we actually do the final shipment so they can share their experiences with other people at the time that we do that shipment.

And we're not ready to announce who, but we have a number of companies that are working with us to go ahead and be early in because their enthusiasm for Windows 95 is saving them money.

CW: Do you go out and personally meet with CIOs and groups of CIOs individually?

A: Oh, sure. I speak at this thing called The Research Board, which is *the* gathering of the top CIOs. I go wherever we can get those groups together. About three or four times a week I meet with a CIO at the Microsoft briefing center, and then I'm out on the road about 14 weeks a year, meeting with the CIOs.

I just spent a week in Europe. Sometimes that's one-on-one, like with Deutsche Bank. We [also] had a group [of] the biggest accounts in England. And then I spoke at a lunch where there were 500 people.

Of course, we have Steve [Ballmer, executive vice president of sales and support] out doing that. And Mike Maples [executive vice president of products] is extremely good at that. He's the one who works, in fact, with Ford and GM the most. And now we have Bob Herbold [newly hired chief operating officer], who will be very effective in that role.

CW: What's the importance of the bundling deal for Windows NT with Motorola, Inc.'s PowerPC machines?

A: Our message about Windows NT is: No matter what happens with chips, we're neutral. If you like Pentium, we're going to do an incredible job there. If you like Mips [Technologies, Inc.'s chip], if you like [Digital Equipment Corp.'s] Alpha, if you like PowerPC, whatever comes along that in the customer's view is meaningful, we'll be there with NT, and all the investments that you make in applications [and] user training carry over perfectly onto these new platforms.

Motorola is a good company to work with. And now they're showing the [PowerPC] 604 stuff that looks good but, you know, Intel, AMD [Advanced Micro Devices] — a lot of companies are strong in this area.

CW: So the x86 line [which includes the Pentium chip] is still dominant?

A: Still dominant and continuing to improve. There's no dead end that they're reaching in terms of continuing to scale the performance at an incredible rate.

> Microsoft may eventually add an instant boot feature where "you'd just turn off the machine and turn [it] back on and you're right where you were," Gates says

CW: Do you think you'll have Windows 95 out by April?

A: We're expecting to have it out in the first half of the year. There are two dates: We're going to have a date where we'll release it to manufacturing, and then there'll be about 45 days before the so-called "on sale" date. And we're pretty confident that will be in the first half of the year.

But it all depends on the feedback that we get. M7 [for "milestone 7"] is out at 35,000 sites [now]. It's also called Beta 2. And then next year we'll go to the "Preview" version, which is sometimes also called "M8" or Beta 3. Windows 95 is [already] feature-complete.

CW: So if there was a feature that you don't have in there that you'd like to have, do you have one in mind?

A: Well, the ability to add more features to Windows 95, even for me, ceased many months ago. But there are things [I'd like to add], like no more booting. You'd just turn off the machine and turn [it] back on and you're right where you were. Just instantly boot. That requires some work . . . actually, quite a bit of work in quite a few layers. And so we'll have to do that later.

CW: You're in a lot of businesses now. Do you ever get the feeling that you're starting to spread yourself too thin in terms of not being able to see the whole vision?

A: Well, we're focused on software, which is what we do well. And we only go into businesses where we have a great team and people, including somebody to lead very well. And they get some help from me in terms of helping see where they ought to go and do things. So we are never going to do more than we can hire very talented people to do. We've been hiring incredible people into areas like graphics and database to really get out in front in those areas.

Alan Levenson

Bill Gates *says Microsoft is 'maybe the 12th biggest in the industry in terms of people, and yet we have to work hard every day to make sure that all the groups are . . . working well together. And that's a big part of my job.'*

And if you want see where Microsoft's going to revolutionize things in a couple of years, look where we're hiring the experts today. We're a tiny company compared to many in this computer industry. We're maybe the 12th biggest in the industry in terms of people, and yet we have to work hard every day to make sure that all the groups are communicating and working well together. And that's a big part of my job.

CW: Can you give us some kind of idea how our readership might find something useful in The Microsoft Network [formerly code-named "Marvel"]?

A: We're going to have a lot of information up there . . . information about Windows and our applications. [For] people who are our Solution Providers, we'll do an even more effective job communicating with them by having information that's easy to browse. It's a way of reaching out and letting them communicate with us in a more effective way than ever before. And for industry groups and for people who want to share things, it could be a very effective tool.

Ahead of their time

Earlier this month, Bill Gates paid $30.8 million for the Codex Hammer, one of Leonardo da Vinci's most famous notebooks. As a final question, *Computerworld* asked whether recent comparisons between him and da Vinci were warranted.

Gates: No. Da Vinci was more unique in his time than I am in mine by a hundred times. Any such comparison I certainly don't mind, but I also think it's overly generous to me to make any such comparison. Da Vinci, the more you know about him, the more amazing he was in music, art, physics, anatomy — you name it. And he was just all alone.

In this book I have, he explains about submarines, water, oxygen, optics, and nothing he wrote in this book was discovered for at least 100 years and some things for 300 years.

[In geology], he understood that there must have been some plate shifting because he knew for sure that [mountain strata that contain fossil seashells] had been underwater before. And seriously, the debate about that was in the 1800s, when scientists started to say, "What are these glacial rocks doing all over the place, and what are these seabed fossils doing on land?" And so here he was, in about 1494, saying that clearly there had been great forces involved, and things had been shifted from below the sea to above.

Anyway, that's just one of many, many things that he was out in front of.

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For a limited time, your purchase of the IBM 8229 LAN Bridge includes your choice of one Single-Port Attachment Module at no extra charge. You can save $874 on a Token-Ring Attachment Module, $564 on an Ethernet Attachment Module, or $595 on the WAN Attachment Module.

Orders must be placed on or before January 31, 1995, and installation (as defined in the IBM Customer Agreement) must occur by February 28, 1995. This IBM Direct exclusive promotion may be combined with any other applicable discounts or allowances.

Save $1,250 on the IBM 8250 Multiprotocol Intelligent Hub.

Purchase an IBM 8250 (Models 06S, 6HC, or 017) with either an Ethernet or Token-Ring Management Module (limited to one per 8250), and you will be entitled to a discount of $1,250 off list price on the 8250/Management Module combination.

Orders must be placed on or before January 31, 1995, and installation (as defined in the IBM Customer Agreement) must occur by February 28, 1995. This promotion may be combined with any other applicable discounts or allowances.

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orkgroups of all sizes.

8230 Token-Ring Controlled Access Unit (Models 3 & 13)

The new IBM 8230 Token-Ring Controlled Access Unit (Models 3 and 13) brings intelligent manageability to small workgroups at a very competitive price per port. These newest members of the IBM 8230 family of intelligent concentrators also offer granularity and modularity that make them remarkably versatile and expandable units.

A new 8230 can perform as an affordable, entry-level workgroup concentrator for just a handful of devices or as a completely managed, full-function, 80-node hub with dual ring redundancy. You can configure it with 2-, 3-, or 4-port Lobe Insertion Units (LIUs) that plug easily into the base unit for more port capacity as needed. Also available are 20-port Lobe Attachment Modules (LAMs) and remote 16-port LAMs for linking network devices a full 200 meters from the base unit.

With a new 8230, you can manage your Token-Ring LAN via LAN Network Manager, or an SNMP manager such as NetView/6000. Enhanced error and status displays help you identify problems fast. And for LANs requiring extra reliability, an optional dual ring redundancy feature is available for use with Ring-In/Ring-Out modules.

8228 Multistation Access Unit

The IBM 8228 is a reliable, cost-effective hub for quickly and easily connecting up to eight devices to a 16 or 4Mbps Token-Ring network. This passive unit is ideal for interconnecting with other hubs to create larger networks using IBM Cabling System (ICS) connectors.

It takes up very little real estate and can be located in a wiring closet, on a desktop, on a wall, or in a standard 19-inch rack. The 8228 offers Ring-In/Ring-Out (RI/RO) ports for added flexibility. It also supports STP and UTP cabling.

High-

8260 Multiprotocol Intelligent Switching Hub

The new IBM 8260 "super hub" is the platform for the next generation of high-speed networks. It provides for easy migration to asynchronous transfer mode (ATM), multimedia LANs and other technologies that require very high bandwidth.

The 8260 chassis accepts all media and interconnect modules from an IBM 8250, so it will protect your existing network assets.

With an advanced passive backplane architecture extending that of the 8250, the new 8260 manages multiple segments concurrently. This very high density system can handle up to eight Ethernet, 17 Token-Ring or eight FDDI networks in a single 17-slot, fully managed hub.

Beyond its leading edge, ATM-ready design, the 8260 introduces the Intelligent Power System, with as many as four power supplies, that dynamically distributes the load evenly among all sources. The 8260 also introduces a new Distributed Management Architecture, enabling concurrent management of multiple LAN segments.

8235 Dial-In Access to LANs Server

Extending enterprise network resources to mobile computer users is now easier than ever. With the IBM 8235 Dial-In Access to LANs Server (DIALS), remote users can have full, transparent access to all your network services from any location that has dial-up phone service.

The 8235 DIALS is a high-performance, multiprotocol, multiport remote networking server that provides full-function Token-Ring or Ethernet connections. It supports protocols widely used in NetBIOS, NetWare, 3270 SNA, and TCP/IP.

performance choices that fit expanding networks.

8250 Multiprotocol Intelligent Hub

The advanced IBM 8250 is versatile enough to protect your current LAN investment and serve as the cornerstone of your network for the future. An 8250 lets you create and connect LANs, change configurations, switch users and perform other tasks without major rewiring.

Build the 8250 system that fits your environment with your choice of more than 50 modules (concentration, interconnection and management), plus powerful management via NetView/6000.

The 8250 simultaneously supports Token-Ring, Ethernet and FDDI topologies over a wide variety of media. For future upgrades or changes, just add new "hot-pluggable" modules to your existing hub.

Management options include centralized or distributed, out-of-band locally or remote, in-band through SNMP, and remote log-on via TELNET from a TCP/IP station.

8250s also include fault-tolerant features and redundancy to keep client/server LANs in mission-critical applications up and running in the event of problems or hardware failure.

8271 EtherStreamer Switch

Is your Ethernet LAN getting clogged? The IBM 8271 EtherStreamer™ Switch can boost network performance at a very low cost per port. This high-performance, standalone device interconnects as many as eight 10BaseT Ethernet LAN segments or a single node, transports traffic at full media speed, and extends network bandwidth from 4 to 8 times that of a single Ethernet segment. When coupled with our full-duplex EtherStreamer adapters, you can now offer 20Mbps Ethernet performance for an individual workstation or a server.

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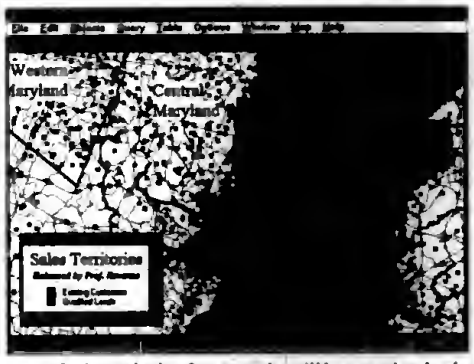
MapInfo/Microsoft deal puts Office applications on the map

By Mitch Betts

The shaded map showing sales territories or retail sites will soon be joining the ubiquitous bar chart and pie chart in the business analyst's standard repertoire.

Desktop mapping software vendor MapInfo Corp. in Troy, N.Y., this month announced a deal with Microsoft Corp. that will lead to the embedding of basic mapping capabilities in forthcoming releases of Microsoft's Office suite and Excel spreadsheet software.



Maps of sales territories, *for example, will become standard in business presentations as applications vendors embed mapping software in their spreadsheets and suites*

That deal follows a similar one earlier this year between Strategic Mapping, Inc. in Santa Clara, Calif., and Lotus Development Corp. The result was the Lotus Maps feature in Lotus' 1-2-3 Release 5.0 for Windows.

For the user community, the agreement means there will be millions of spreadsheet users who will be able to analyze their customer and sales data from a spatial perspective. About 85% of all corporate data has some geographic element, such as customer address.

Going mainstream

While there are 400,000 users of traditional, full-featured geographic information systems (GIS), there are 15 million spreadsheet users, said Brian D. Owen, MapInfo's president. So it is easy to see why the mapping vendors want to tap into the mainstream market.

In fact, there will be three levels of GIS users, said Dick Taylor, GIS director for Guilford County in North Carolina. Some use high-end GIS software on Unix workstations for applications such as environmental management. In the middle are the users of robust PC-based software, such as MapInfo's core product and Strategic Mapping's Atlas GIS.

At the low end will be the spreadsheet users, some of whom will "get a taste of the power of mapping and then want to move up to more powerful software," Taylor said.

Tom Mulhall, a consultant in Key West, Fla., who develops information systems for disaster assessments, said he has great success using Excel and MapInfo side by side. He analyzes data along geographic lines using MapInfo and then pours the results into a spreadsheet to further analyze the data in pie charts or graphs.

For the vendors, there is a slight danger that the spreadsheet mapping features will cannibalize sales of their full mapping packages, "but the alternative of doing nothing is also unacceptable," said Kathey Hale, a senior analyst at Dataquest, Inc. in San Jose, Calif.

She said mapping can and will be embedded in a variety of applications, so it is important for GIS vendors to enter the "horse race."

Macintosh software

Stacker 2.0 speeds compression

By Ed Scannell

Responding to user demands for performance, Stac Electronics, Inc. has released a new version of Stacker for Macintosh that it claims is three times faster than the original release of the disk compression program.

Version 2.0, which works with all of Apple Computer, Inc.'s series of Macintoshes, uses a new disk-oriented approach to compressing hard drives. The approach no longer requires users to launch the compression program, select the files to be compressed and then wait for the compression, a spokesman said.

For instance, when a data file is either opened or saved to a drive compressed by Stacker, it is immediately handled by Stacker. Because of this, users may sometimes even see an improvement in application launch time.

"The speed difference is noticeable. Before [with Version 1.0], it really bogged down performance on a lot of operations where you had multiple applications up," said Jeff Timmons, a support specialist at Allied Trucking, Inc. in Denton, Texas.

The approach was also designed to minimize the compatibility problems among applications that previous versions of the program experienced.

Features included in the new version are Stacker Anywhere, which allows all removable Stacker drives to be mounted on any Macintosh system, including those that do not have Stacker installed; the ability to have multiple partitions on the same drives; on-line, context-sensitive help; and a full uninstall feature.

For safety reasons, the company has also added a redundancy capability to the product's file-system that permits Stacker to provide an automatic data-saving set of disk repair tools.

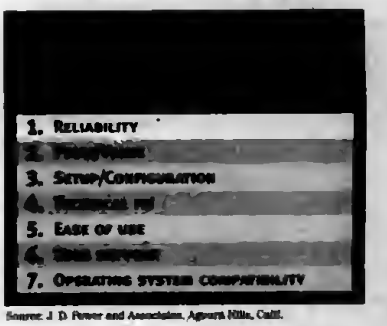
Stac is selling the program through its resellers for $100. Existing Stac users can purchase an upgrade direct from the company for $49.95.

PC users cite reliability as No. 1 concern

By Jaikumar Vijayan

A very different set of dynamics is driving customer satisfaction at the desktop today compared with even a year ago, according to the results of a recent study by J. D. Power and Associates. Today, it is reliability that counts.

In interviews with more than 1,500 users who bought desktop computers during the past two years, product reliability ranked as the most important factor determining a customer's satisfaction with the purchase. Other crucial factors were price/value and issues relating to setup and configuration, according to the study.



Source: J. D. Power and Associates, Agoura Hills, Calif.

These priorities have changed significantly, according to previous studies conducted by the market research firm, in which ease of use and user support were rated the most critical drivers of user satisfaction.

"The cycle of technology is changing very rapidly," thereby rendering desktop technology obsolete rapidly, too, said Robert Lunn, an analyst at J. D. Power in Agoura Hills, Calif. "The perceived obsolescence of these older units may be the primary reason that reliability has an increased weight in satisfying users."

Fear of defective systems

User concerns about reliability may also be heightened by increased reports of defective PC products. Those defects stem from manufacturers trying to keep pace with shorter product cycles and higher demand from the consumer markets, the report said.

"Reliability is a very important factor" in customer satisfaction, but that is not new, said Ted Julian, an analyst at International Data Corp. in Framingham, Mass. "Actually, what we are seeing is something that has been going on for some time now" that vendors must pay close attention to, he said.

"Any Top 5 vendor that does not think product reliability is an issue is not going to remain a Top 5 vendor for long," Julian said.

Another major issue affecting user satisfaction is ease of setup and configuration. Issues such as the ability to connect via a network to other systems, compatibility with modems and printers, ease of setting up the computer and the ability to upgrade the hardware and operating system were all crucial, the study said.

According to Lunn, one reason support may not be the most important criterion this year is the proliferation of dial-up services and other types of on-line support.

One user's concerns reflected previous survey results, however.

"Product reliability is important for us," but it is not critical, said John Smith, manager of end-user computing at Kennametal, Inc. in Latrobe, Pa. Having just moved some marketing applications from a mainframe environment to a client/server environment, the company is taking care of product reliability issues by building redundancy into its purchase process. For instance, each person in the company's laptop-equipped sales force has rapid access to alternate machines if his assigned unit should fail.

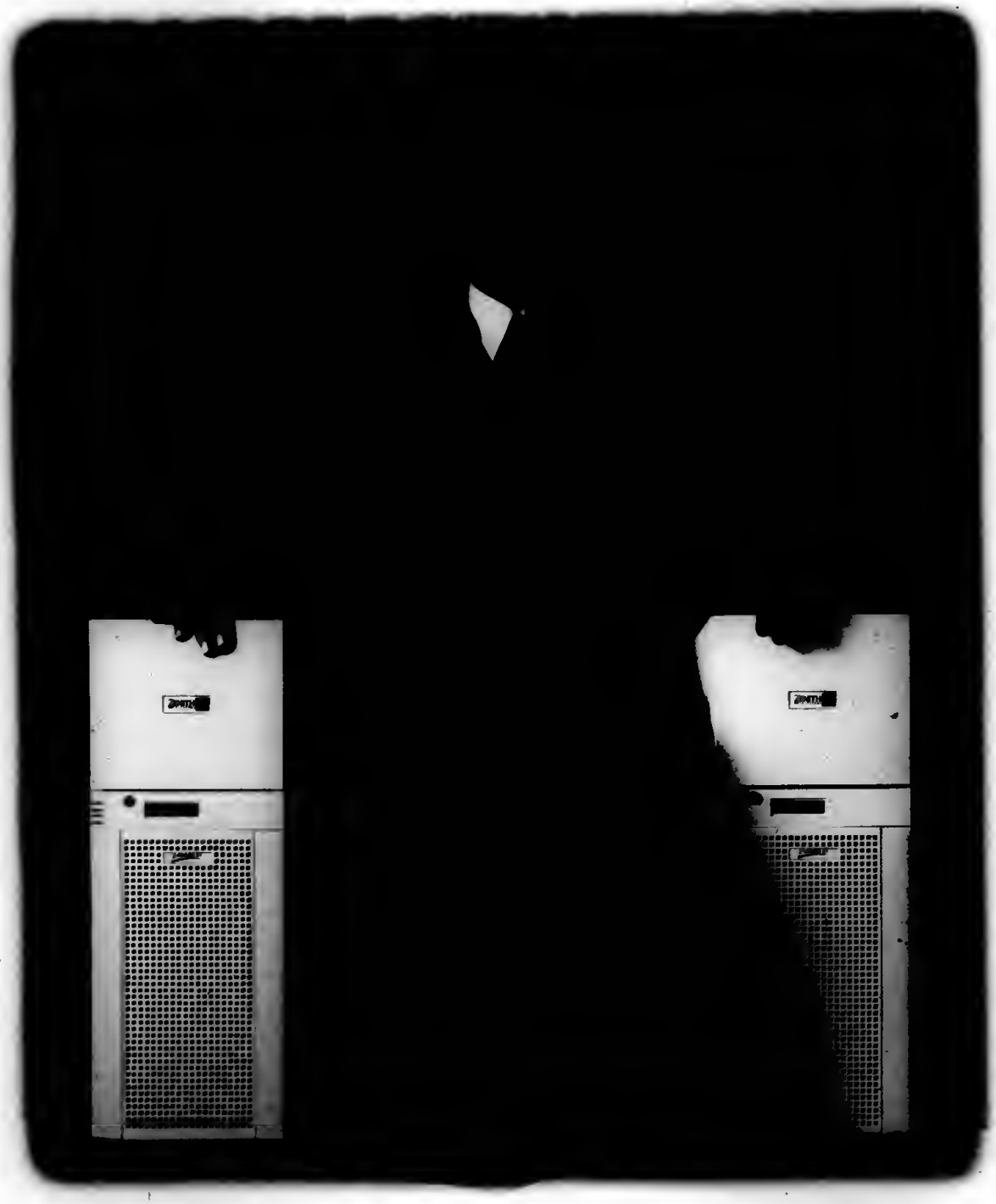
The real glitch

Instead, the biggest problem, as Smith sees it, is technical support.

"Whereas on the mainframe we could centralize our support functions," the distributed computing model makes that kind of centralization difficult, he said.

On the technology side, PC vendors seem to have fit the pieces together, said Kim Johnson, owner of TMC Personal Computer Services in Sun Prairie, Wis. Johnson, who is helping a client move to client/server, went to Comdex/Fall '94 to look for vendors to help him. "What I am hoping is I will be able to find out just how reliable some of these vendors are," he said.

When We Say Server



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Symantec users OK new PCAnywhere

By Michael Fitzgerald

■ Despite lingering concerns over technical support, users have generally applauded Symantec Corp.'s PCAnywhere for Windows 2.0, which started shipping Nov. 14.

The version hit the streets at a time when analysts are predicting growth for the remote access market and demand for the new capabilities offered by Symantec and its competitors.

"They fixed dozens of things" from Version 1.0, said Gene Friedman, manager of data communications at the audit division of a large international bank in New York. He said the primary changes were the update of drivers for the .INI files. In the first version of PCAnywhere, the standard video, keyboard and mouse drivers in Windows were all replaced when PCAnywhere was loaded.

"With 1.0 I was always scared to use host mode," Friedman said. Because of the way the version replaced drivers, configuration issues could arise if users fiddled with the drivers, causing Windows not to boot on their systems. With the new version, this no longer occurs, he said.

Friedman said the new version, while it still updates some .INI files, no longer replaces video, keyboard and mouse files, which is a boon for him.

Users also cited the new product's support for TCP/IP, its improved performance and its support for 1,280 by 1,280 by 256 dot/in. resolution. The product also has a synchronization feature, the ability to clone directories and beefed-up security.

TCP/IP support brings PCAnywhere up to speed with Ocean Isle, Inc.'s ReachOut and Norton-Lambert, Inc.'s Close-Up and ahead of Traveling Software, Inc.'s LapLink for Windows. However, Mark Eppley, Traveling Software's chairman and chief executive officer, said his company will soon add TCP/IP support to its product.

"Our corporate customers were begging" for IP support, said Joseph Licari, senior product manager at Symantec.

"In the communications arena, TCP/IP support is a check-off item," said Elizabeth Rainge, an analyst at International Data Corp. in Framingham, Mass. Rainge said support for Microsoft Corp.'s Windows 95 should be a particular boon for information systems executives.

"Windows 95 support is important because users want to know if something is going to have support," she said.

Symantec also boosted its speed by up to 25% in the new product.

Meanwhile, expected growth in the remote access/remote control market should benefit Symantec and other players. Traveling Software, for instance, signed licenses for 50,000 seats for its new LapLink for Windows at Comdex/Fall '94, Eppley said.

PCAnywhere for Windows 2.0 *and other remote access products are integrating TCP/IP support*

Gary Black, systems support coordinator at Premisys Real Estate Services Co., a real estate management company in Houston, is leaving Microcom, Inc.'s Carbon Copy to move to LapLink for Windows.

"We've tested [LapLink for Windows] and are really pleased with its performance and ease of use," Black said. He plans to update 90 users to LapLink for Windows when a site license is worked out. What impressed him most about the product was its ability to drag and drop files, he said.

Black said LapLink will likely improve Premisys' on-line support, as its speed and ease of use should make it easier to remotely update software.

"Before, I'd have to jump on a plane to go install software," Black said.

Data access and reporting

Crystal Reports speeds data access for LAN, remote users

By Tim Ouellette

Some people might feel indifferent about the report writer on their PC, but not Thomas Wilk when he is discussing Crystal Reports 4.0. "If you are doing Windows reporting or development, you'd have to have a screw loose not to look at this product," said the treasury analyst for systems at ADP Atlantic, Inc. in Wilmington, Del.

Crystal Computer Services, Inc. in Vancouver, British Columbia, which is owned by Seagate Technology, Inc., has added features to speed up and simplify data access and reporting in Crystal Reports 4.0, and Crystal Reports Server 4.0, the latest releases of its Windows-based report writer. Wilk, who uses Crystal Reports to prepare customized investment reports, was among beta users who agreed that the products are easy to use for most people but required some further polishing and small formatting improvements.

Codeless creating

Crystal Reports 4.0 lets users create reports from a large number of databases without having to write code. It also has speed tips that help users streamline database queries. A smart linking feature automatically links similar fields in different databases to speed report building.

At Coopers & Lybrand's Tax Technology Consultant Group in Washington, Crystal Reports is used not only as the group's report writer but also as a data exporter for Lotus Development Corp.'s Notes groupware.

"We spent a lot of time finding the best way to get information out of Notes," said senior manager Rick Reekie. Crystal Reports showed significant speed improvements over Lotus' Approach and Notes' own export capabilities, he said.

Building from the low end

Crystal has built more querying functionality into its low-end report writer to gain a share of the data access market

END-USER DATA ACCESS MARKET (WORLDWIDE)

*Estimated

Source: International Data Corp., Framingham, Mass.

When working with the live data, users can add drill-down tabs in the report that reveal more detail. For remote users or users who do not need to be connected live to the database, the product saves a copy of the underlying data with the report so the report can be manipulated without affecting the database.

To get reports beyond a single desktop to workgroup users, Crystal Reports Server 4.0 provides report requesting, scheduling and centralized report processing and allows remote requests.

"Crystal Reports Server is a strong addition to Crystal's products," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass., noting that the server product differentiates Crystal from its competitors. Gillan said she expects vendors such as IQ Software Corp. to come out with similar products soon.

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Portable Software Corp. has announced QuickExpense for Windows, expense report management software.

According to the Bellevue, Wash., company, QuickExpense for Windows lets business travelers enter receipts without first organizing them by date or category.

QuickExpense includes 15 industry- and occupation-specific expense forms and can manage mileage calculations, foreign currency conversion and cash advances. Lodging, food and telephone use can be separated from a hotel bill, and a Smart Alert feature notifies users when to submit the expense report or when they are reaching credit-card spending limits.

Expense reports can be submitted from QuickExpense via Windows electronic-mail systems.

QuickExpense for Windows costs $69.

▶ *Portable Software*
(206) 637-8808

Nokia Mobile Phones, Inc. has announced the Personal Communications Services (PCS) Data Card, a PCMCIA interface card.

According to the Largo, Fla., company, the PCS Data Card can send and receive data, fax and electronic-mail transmissions over Digital Cellular System 1900 PCS networks at speeds of up to 38.4K bit/sec.

The credit-card-size card was designed for use with the Nokia 2191 portable PCS phone and laptop computers with PCMCIA II slots and supports standard communication and fax software. Features include automatic dialing, data call setup and network error control.

Prices start at $250.

▶ *Nokia Mobile Phones*
(813) 536-5553

Aquiline, Inc. has announced Hurricane notebooks with 810M-byte hard drives.

According to the Troy, N.Y., company, the drives are lighter than the 510M-byte drives currently offered for Hurricane notebooks.

With the use of compression programs, users can extend memory up to 1.6G bytes.

Hurricane, with an Intel Corp. 1486 DX4 CPU and an 810M-byte hard drive, costs $5,595.

▶ *Aquiline*
(518) 272-0421

Protege Corp. has announced ATA/B, a desktop PCMCIA integrated drive electronics adapter.

According to the Anaheim, Calif., firm, ATA/B turns Type III PCMCIA-ATA hard drives into removable boot drives.

The product lets users quickly change operating systems and integrates removable boot drive capabilities into any Industry Standard Architecture desktop PC.

ATA/B costs $69.

▶ *Protege*
(714) 961-7000

IQ Software Corp. has announced IQ for Windows 4.0 and IQ for Motif 4.0, query and reporting software.

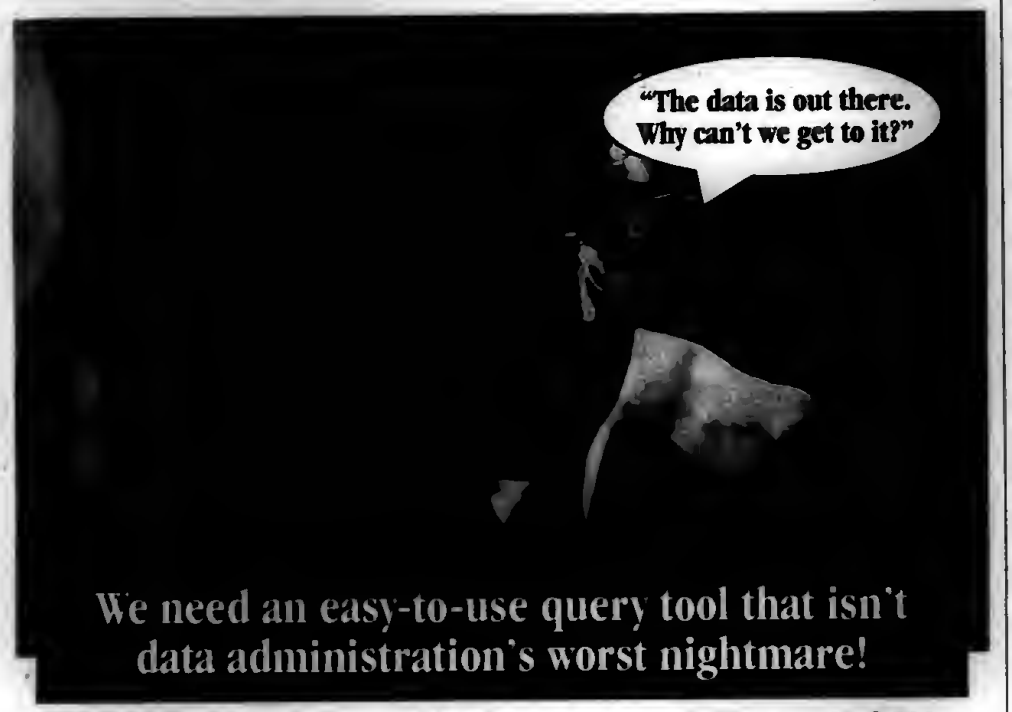
According to the Norcross, Ga., company, IQ for Windows 4.0 can be configured to access relational database megadata directly and lets administrators create predefined data views for nontechnical users.

An object-oriented report painter and output viewer support scalable fonts, colors and borders. A charting module includes both two- and three-dimensional charts.

Users can develop reports on Windows workstations and move them to a Unix host for batch execution.

Prices start at $500 for Windows and $1,500 for Motif.

▶ *IQ Software*
(404) 446-8880



Data rich and information poor.

It seems everyone in your organization needs access to corporate data, and each group approaches the task differently.

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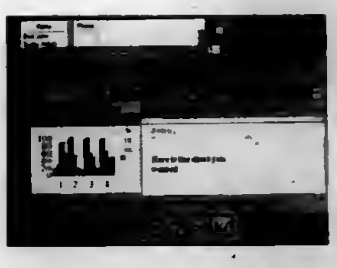

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Microkernel may hold key to client/server

By Ed Scannell and Jean S. Bozman

■ The major computer vendors are engaged in a horse race to be first to ride microkernel technology into the market as they move their already-well-known operating systems into the era of distributed computing.

But it is not yet clear who will take win, place and show or how much users will care by the time all the riders reach the finish line at the end of 1996.

For some vendors, microkernels offer a way to lift an operating system from one hardware platform and quickly transfer it to another. That was the case when IBM moved OS/2 from Intel Corp.'s x86 architecture to PowerPC. IBM executives said. However, microkernels also promise a more efficient way of handling most operating system housekeeping, including file systems and memory management. That has the potential to boost the execution speed of client/server applications.

"Most operating systems have the same functions," said Donna Van Fleet, vice president of AIX system development at IBM's RS/6000 division in Austin, Texas. "For those common functions, you would use a common microkernel. The only thing really different between the operating systems would be the different interfaces."

Microkernel lineup

Company	Microsoft	IBM	Apple	Taligent	Novell
Microkernel	Modified Mach variant	Mach variant	Proprietary	Mach variant	Chorus variant
Features	Will support Windows NT 3.5	IBM OS/2 on PowerPC	Support for Mac OS, Taligent	Object-oriented for IBM, Apple	NetWare and UnixWare support
Due date	Late 1994	June 1995	Second half 1995	Second half 1995	1996

Freedom of choice

Applications will be the focus of users' hardware and software decisions — not the choice of operating system — when microkernels are widely used.

"Conceptually, it is a great idea," said John Chapman, lead computing architect at Amoco Corp. in Chicago. "It will be more interesting to us as microkernels can slide in and out underneath our standard platforms."

But in the next 18 to 24 months, he said, the firm's investment in Intel hardware and Windows software will remain in place.

Microkernels can host multiple "personalities" that provide the features of well-known, monolithic operating systems, ranging from IBM's OS/2 on PowerPC to Novell, Inc.'s NetWare and UnixWare on Intel platforms. However, some vendors are staying on the sidelines, for now. Sun Microsystems, Inc. is working with microkernels as part of its spring research project, but it is advocating the use of "dynamic loadable modules" as an alternative to modular microkernel designs. Hewlett-Packard Co. said it is only "evaluating" microkernel architecture.

Some users say microkernel technologies will have a near-term benefit, especially in the way they could hasten the development of mission-critical client/server applications among users as well as among builders of commercial operating systems.

"A microkernel gives you an opportunity to significantly increase system integrity by better trapping [of] errors," said Bob Holmes, senior technical consultant at Southern California Gas Co. in Los Angeles. Holmes said the microkernel would modularize many operating system services by "moving them away from the core of the system" and making them easier to address.

The microkernel engines offer the prospect of being faster than today's operating systems because they are smaller in size and operate more efficiently. Some microkernels run at 200,000 lines of code; average 32-bit operating sys-

Microkernel, *page 52*

Unix users will wait

IBM's first implementation of its microkernel is expected to ship with OS/2 for PowerPC in June 1995. An AIX flavor, however, may not be marketed for Intel machines, as was originally planned, analysts said.

"IBM had intended to introduce a Unix personality running on the Intel platform this year," said Tony Iams, a research analyst at D. H. Brown Associates. "Right now, the added value [of the microkernel] is questionable because AIX has a lot of momentum as it is." But Iams said he expects IBM to field several microkernel flavors for PowerPC over time. And, AIX runs native on the PowerPC chip.

Apple Computer, Inc. has its own microkernel under development, said Ike Nassi, vice president of operating system products at Apple. Called NuKernel, it is due out the second half of 1995 with the next major release of Apple's Mac OS operating system.

"We felt that doing our own microkernel provided us with a lot of flexibility in terms of hosting multiple personalities," Nassi said last week. "If we wanted to host Taligent on it, we could."

—Jean S. Bozman and Ed Scannell

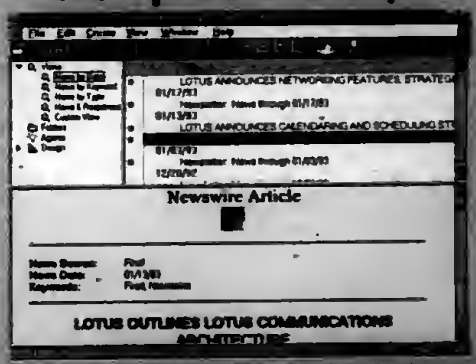
Messaging & other matters

The following messaging, groupware and on-line items come from this month's Fall/Comdex '94 show:

- **Prodigy Services Co.** in White Plains, N.Y., banished the 40-column screen format from its electronic-mail service. Along with this upgrade, the company added Internet messaging and an off-line message composition tool. It also doubled the size of users' E-mail address books.
- **Biscom, Inc.** in Chelmsford, Mass., announced a fax server that runs on Novell, Inc. NetWare 3.x and 4.x servers as a NetWare Loadable Module. Called Faxcom, the software directs faxes to LAN users' desktops and enables joint network and fax administration.
- Market research company **BIS Strategic Decisions** in Norwell, Mass., released a study that predicts the PC fax modem market will level off and the LAN fax server market will grow by more than 80% in the next three years.
- To help parents safeguard their children while on-line, the **National Center for Missing and Exploited Children** in Arlington, Va., and **Interactive Services Association** in Silver Spring, Md., distributed an educational brochure at Comdex. The brochure instructs families on how to access on-line services without becoming victimized. Call (800) THE-LOST to obtain free copies.
- Groupware company **First Floor, Inc.** in Mountain View, Calif., said it is one of the first commercial software firms to distribute software on CompuServe. Members of the on-line service can download First Floor group conferencing software for $49 per user.
- Accounting software company **Great Plains Software** in Fargo, N.D., said it is shipping integration management software for Notes. The product is said to let companies mix back-end office systems information with front-office procedures such as sales and lead tracking.

—Lynda Radosevich

Sneak preview: Notes 4.0



An alpha version of Notes Release 4, which Lotus Development Corp. expects to deliver in the second half of 1995, features a redesigned user interface. Screens can be split into tiled panes. Here, panes show a list of folders, a list of documents from a selected folder and a specific document from the list. Sources said other promised Notes 4 enhancements, such as improved server performance, have yet to appear. *—Lynda Radosevich*

Steve Moore

Look who's watching

Recent developments in software license management have left application vendors, end users and network managers scrambling to figure out whether they will be winners or losers when the dust clears.

In the past, large companies were unable to control software use efficiently. Eager to limit their liability in the event of a whistle-blower incident or a Software Publishers Association (SPA) audit, many companies routinely paid for more licenses than they actually used.

Now, new software license metering applications allow licenses to be shared serially or concurrently, night and day, among multiple users locally, nationwide or — international laws permitting — around the globe.

Large companies stand to save a bundle by shedding unnecessary licenses, although smaller companies that once tolerated bootleg software may end up spending more. But no one will have to pay for more use than actually occurs, and seldom used applications will be identified and removed to make way for more popular ones.

That leaves some application vendors shaking in their boots for fear of lost revenue.

Orwellian fears

There is another side to this coin, however. Efficient monitoring of software use makes end users fear they'll always be under the eyes of two groups of Big Brothers, vendors and corporate network managers.

With the help of automated local and remote monitoring agents that can be deployed on servers and LAN-attached PCs, network managers will be able to nab employees electronically if they use games or other unauthorized software. And by combining similar tattletale agents with SPA audits, vendors hope to force end users to abandon their nasty habit of duplicating and using software without paying for it.

> With the help of monitoring agents, network managers will be able to nab employees electronically if they use games or other unauthorized software.

Efficient software use monitoring and license enforcement seems likely to land LAN administrators in the middle of disputes about who gets to use which software. And new access-restriction features built into some license metering applications could compound that problem.

For example, an employee learning how to use the latest update of a popular spreadsheet might be interrupted by a polite request that really means, "Get out of that application now. Your boss wants to use it, and she has first dibs on it at all times."

In addition to finding your software use restricted because of who you are, you may also find yourself limited by where you are or what time it is. Some new metering products can also dole out applications based on those parameters.

So go ahead and try to launch that app. You never know what might happen.

Moore is a senior editor, Networking, in *Computerworld*'s Burlingame, Calif., bureau.

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Storage, Comdex style

Redundant arrays of inexpensive disks (RAID), storage management and CD-ROMs were among the storage highlights at Comdex/Fall '94 in Las Vegas.

- **Conner Storage Systems** in Lake Mary, Fla., released a 12-drive RAID subsystem that offers up to 25G bytes of storage for $14,995. The subsystem works in Novell, Inc. NetWare and Microsoft Corp. Windows NT networks and includes centralized management software.
- Maybe you're ready for hierarchical storage management (HSM) on the LAN, but are you ready for it on the desktop? **Chili Pepper Software, Inc.** released Infinite Desk Pro, a $149 package that moves little-used files from a PC hard disk to a floppy, a ½-in. tape cartridge or a network server. **Sytron Corp.** will also sell the software under the name Never-Ending Disk for $129.
- Elsewhere in the realm of HSM, **Avail Systems Corp.** is offering a hard disk-only version of its storage software. That means you do not have to dive into tape and optical migration. It costs $2,749.
- The new thing in CD-ROMs is quad-speed capability. **Disctec Corp.**'s Road-Runner Express CD-4X is an external quad-speed CD-ROM with plug-and-play ability. It supports 600K bit/sec. transfer rates and costs $499. — *Mary Brandel*

NetFrame serves up Pentium

By Jaikumar Vijayan

NetFrame Systems, Inc. recently announced the NetFrame ClusterServer 8500 midrange system featuring Intel Corp.'s 100-MHz Pentium processor. The system, which tops NetFrame's line of superservers, features a flexible, multiprocessing architecture that supports both clustered and four-way symmetric multiprocessing.

New features on the 8500 include a high-bandwidth memory bus capable of providing a peak throughput of 800M byte/sec., 512M bytes of main memory capacity, 8-bit memory error correction and several continuous availability features, including the following:

- Processor auditing, an optional processor data integrity checking feature whereby a second Pentium "auditor" compares and checks each clock cycle with the main Pentium processor.
- Processor/cache fault tolerance available through a "Gemini mode" operation that automatically and transparently transfers operations to a redundant processor or cache in the event of a processor fault.
- Extended memory error correction capable of correcting up to eight errors in each access to main memory.

The system, which is aimed at high-end, business-critical types of environments, will start shipping this month. It will be available in three models, each equipped with a standard 64M-byte error correction code memory, an Intel 486-based I/O server, integrated networking connections and cluster management software. Pricing for a two-processor system is expected to start at $89,950.

The system brings shrink-wrapped operating systems and standard nonproprietary hardware to business-critical application environments, said Carl Amdahl, NetFrame's chairman and chief executive officer.

"They are the only player in the enterprise space delivering shrink-wrap applications on an Intel platform with this level of fault tolerance and scalability. It is a great example of midrange Intel computing," said Carl Everett, executive vice president and general manager at Intel's microprocessor products group.

Analysts said they are impressed with the system's technical capabilities, but they were cautious in estimating NetFrame's long-term success with it.

"It's a powerful system, and it is hitting the market at a right time," said John Daly, an analyst at Summit Strategies, Inc. in Boston.

"The major concern is with their business model," he added. "You have to question whether the scale of their operations will allow them to offer the kind of support" that the high end of the market will require.

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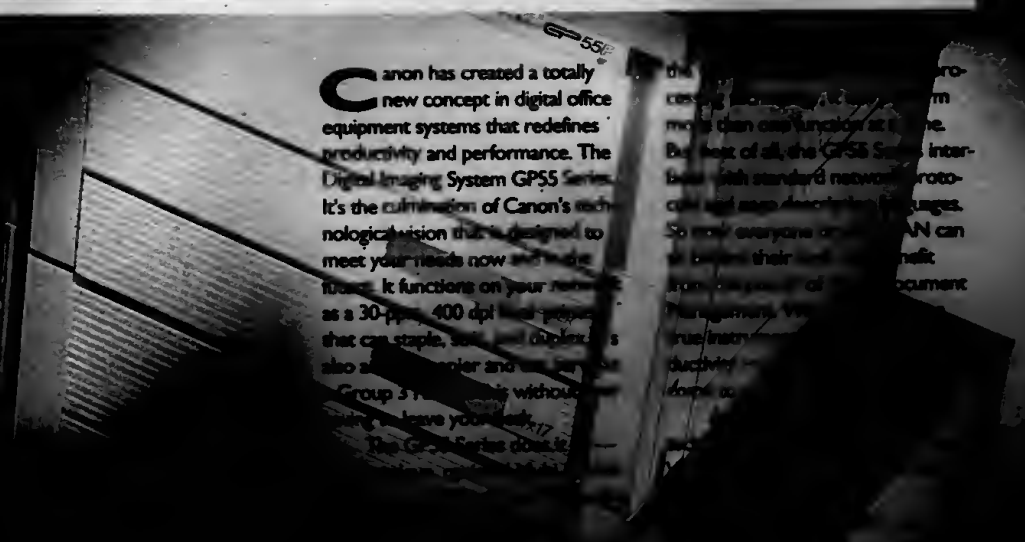

C A N

Canon

Microkernel

CONTINUED FROM PAGE 49

tems range upward from 4 million lines.

But for now at least, performance is a concern. "The underlying problem is that every time you put an additional layer of software between the machine and the application, you're slowing things down," explained Donald Haback, an executive vice president at D. H. Brown Associates, Inc. in Port Chester, N.Y. Faster chips in future platforms should compensate for any loss in speed, he noted.

Users also see performance as a major hurdle to overcome if microkernel-based operating systems are to become widely accepted on corporate desktops. "Performance is always going to be an issue with all these layers thrown in," Holmes said. That is why users have turned to symmetrical multiprocessor systems to gain power, he said.

Instead of worrying about the hardware underpinnings, users of microkernel systems would see only the hardware abstraction layer and could write to specific application programming interfaces when migrating software.

"It's perfectly practical to converge hardware platforms without a microkernel," said Cliff Reeves, director of object technology products at IBM's Personal Software Products division in Austin, Texas. "It would be much easier if microkernels were involved. The more you can agree on, the less you have to do twice."

Irregular use

Some information systems executives said few users need to switch environments on a daily basis to get their work done. "It [multiple personalities] certainly gives us more flexibility from a development standpoint," said John Handy, a senior consultant at a large utility in Gaithersburg, Md. "But I am not sure we can build a good business case for users swapping environments."

Both technical and marketing considerations have combined to stop delivery of various microkernel personalities in IBM's Workplace OS, analysts said. Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass., said some of IBM's best customers were not receptive to the concept of IBM's one-size-fits-all Workplace OS microkernel.

IBM now faces the task of persuading IS developers and application software vendors to sign on for microkernel computing and to train them in how the microkernel works. "Until you get to the point where developers are comfortable with what you're doing, you're not going to get anywhere," she said, referring to IBM. "The problem is, you can't just show up one day and say the microkernel is ready."

Briefs

Token Ring together

Fighting the switched Ethernet juggernaut, several networking companies recently formed an alliance to promote Token Ring technology. The group is called the Alliance for Strategic Token Ring Advancement and Leadership. Members include 3Com Corp., Bay Networks, Inc., Bytex Corp., Centillion Networks, Inc., IBM, Madge Networks, Inc., Standard Microsystems Corp., Texas Instruments, Inc. and Olicom USA, Inc. The alliance will conduct an educational program to help users understand the current capabilities of Token Ring and future switched Token Ring products.

HP sells to aerospace firm

Hewlett-Packard Co. said it will supply up to 1,000 HP 9000 Unix workstations and servers a year to Martin Marietta Corp. in Bethesda, Md. Martin Marietta announced earlier this year that it is merging with Lockheed Corp. in Sunnyvale, Calif. The Unix machines, which will be shipped as part of Marietta's Engineering Productivity Program, could end up costing the firm $30 million to $40 million over three years, including training and consulting, HP said.

There are two managing

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NetAccess Development Corp. has announced DriveMaster, peer-to-peer drive sharing software.

According to the Youngstown, Ohio, company, DriveMaster lets workgroup managers back up the hard drive of any node attached to a Novell, Inc. NetWare 3.x or 4.x network.

Users can restrict a backup machine's view of the user node to a specific local drive or directory structure. DriveMaster supports all DOS file operations and performs backups in the background so a user can continue normal operations.

Prices range from $249 to $1,995, depending on the number of users.

▶ *NetAccess Development*
(216) 759-7565

On Technology Corp. has announced SofTrack 2.0, metering software.

According to the Cambridge, Mass., company, SofTrack 2.0 is a software metering Novell, Inc. NetWare Loadable Module that monitors the number of application licenses on a network and provides enhanced reporting and metering capabilities.

Features include a report definition screen, summary report sorting by category, print previewing and the ability to generate reports and graphs from multiple files. The product can meter Dynamic Link Libraries and the opening and closing of files. It also provides overflow and block usage switches.

Prices range from $495 to $3,995, depending on the number of users.

▶ *On Technology*
(617) 374-1400

McAfee Associates, Inc. has announced SiteMeter 5.0, PC LAN metering software.

According to the Santa Clara, Calif., company, SiteMeter 5.0 supports wide-area network metering over TCP/IP.

The product monitors software use across the WAN and meters out software use based on the number of licenses purchased. SiteMeter also consolidates multiserver metering and reporting under a centralized administration console.

SiteMeter 5.0 costs $40 per node for 10 workstations.

▶ *McAfee Associates*
(408) 988-3832

Integrix, Inc. has announced the HA1000, a high-availability SPARC-based server.

According to the Newbury Park, Calif., company, the HA1000 provides protection from system server failure by providing redundant backup to resume tasks without disrupting operation.

The system combines Integrix's SW20 multiprocessing SPARC 20 system with an Sbus expansion system, hot-swappable redundant load-sharing power supplies, multigigabyte redundant arrays of inexpensive disks drives and networking software.

The HA1000 costs $24,995.

▶ *Integrix*
(805) 375-1055

Mountain Network Solutions, Inc. has announced FileSafe 1.1 for Windows Rescue Novell, Inc. NetWare Loadable Module (NLM) software.

According to the Scotts Valley, Calif., company, FileSafe 1.1 for Windows Rescue NLM features workstation backup support and an enhanced user interface.

The product provides automated backup protection, data management and disaster recovery for client and server applications. FileSafe 1.1 for Windows Rescue NLM is compliant with System Independent Data Format 1.0 and Storage Management Services.

FileSafe 1.1 for Windows Rescue NLM costs $499.

▶ *Mountain Network Solutions*
(408) 438-6650

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Asynchronous Transfer Mode

DEC's ATM switch costly but reliable

By Mary Brandel

Digital Equipment Corp. formally entered the world of Asynchronous Transfer Mode (ATM) networks recently with an interface adapter and a LAN switch.

In some ways, Digital is ahead of the curve with 30 ATM customers. Standout features of Gigaswitch/ATM, these users said, include very high bandwidth, good congestion control and ease of use.

ATM masters

Two algorithms help Digital's Gigaswitch/ATM achieve its high throughput and low network congestion:

SwitchMaster
Looks for a cell in the packet that matches any open port destination instead of waiting for a port to open up. This enables more than 95% bandwidth utilization, while most switches promise just 58% utilization.

FlowMaster
Ensures that a buffer is available before a cell enters the network. Zero cell loss due to congestion is guaranteed. Buffer size is 10 to 20 cells per virtual circuit.

Source: Digital Equipment Corp.

In other ways — particularly price — Digital has some catching up to do.

"They have the initial makings of a very good ATM switch," said Frank Dzubeck, an analyst at Communications Network Architects, Inc. in Washington. But while the full-blown 52-port configuration is "extremely competitive" at $25,740, the per-port price of $2,600 is very expensive, he said.

"The ATM market right now will be won or lost on price," added Thomas Nolle, president of CIMI Corp. in Philadelphia. "If they're not prepared to offer ATM to the desk for a street price of less than $1,000, they're wasting their money."

High price to pay

Price has already served as an inhibitor to one beta customer. Partly due to cost, the University of Miami has not configured all of its servers with ATM and is not yet in production mode, according to Peter Evans, research associate at the university. "What we keep feeding back to them is if you're serious about selling into a commercial market, you're going to have to be a bit more competitive," Evans said.

The University of Miami is processing 15G to 20G bytes of satellite data per day and expects to quintuple that amount by next year. It uses Digital's Gigaswitch/ATM internally and is also experimenting with wide-area network transmissions with the Naval Research Laboratory in Washington and Oregon State University.

Evans said he will continue to use Gigaswitch/ATM for the entire ATM implementation. But he said price is not the only thing standing in his way.

On its internal LAN, the university so far can ATM-enable only its Alpha AXP 3000 servers, not the 2100s. This is because the 2100s are based on the Peripheral Component Interconnect (PCI) bus, while the ATM interface adapter was designed to take advantage of the Turbochannel bus. The Turbochannel bus is a very high-speed, proprietary bus that is implemented in Digital's VAXs and older Alphas.

Digital-only surroundings

Digital said a PCI- and Extended Industry Standard Architecture-based interface will ship during the first half of next year. But because of the current design, the switch's full benefits are realized only in a 100% Digital environment.

"In theory, you can connect with adapters from other people, but you won't necessarily get" optimized congestion control (see box page 70), Dzubeck said.

In the University of Miami's WAN transmissions, Gigaswitch/ATM sends data to a Fore Systems, Inc. switch, which then connects to a Silicon Graphics, Inc. server in Washington. "So we can't use the congestion control stuff" over the WAN, Evans said.

ATM switch, *page 70*

Service helps home buyers net mortgages

Fannie Mae passes along cost, time savings through EDI

By Thomas Hoffman

Next month, the Federal National Mortgage Association, or Fannie Mae, will roll out an electronic data interchange (EDI) service to help lenders reduce their mortgage origination costs by $1,000.

The service, called Mornet EDI, will serve as an electronic mortgage highway to allow lenders and service providers to process home loans and exchange mortgage market information. Banks and other companies will be able to access Mornet EDI with DOS-based PCs dialing into a Sprint Corp. network, according to Franklin D. Raines, vice chairman of the Washington-based provider of home mortgage funds.

Fannie Mae's Franklin D. Raines: *The network will help reduce the average home buyer's mortgage origination costs from $2,500 to $1,500 by the year 2000*

End to the paper chase

The network is expected to enable prospective home buyers to complete mortgage originations in a matter of minutes compared with the hours that cumbersome paper-based transactions once took. Lenders will be able to electronically transmit application information to any one of 35 service providers on the network to process a particular service such as credit reports, appraisals and fraud detection reports.

By providing a wide array of vendor services across Mornet EDI, Fannie Mae expects to help lenders reduce their operating costs — savings that will, in turn, be passed along to consumers. For example, the mortgage credit reporting industry currently uses a set of documentation called the Residential Mortgage Credit Report (RMCR) that is available to lenders for $50 to $75 per hard copy, according to Al Verkuylen, vice president of strategic relationships at Informative Research, a Garden Grove, Calif., mortgage information services vendor.

Thanks to the advent of national EDI mortgage networks, the RMCR will likely be replaced by the Merged Credit Report, a PC-based on-line package that lenders can obtain for $20 a copy, Verkuylen said.

More important, the Merged Credit Report will enable lenders to process customer credit files on-line within minutes. Comparatively, the turnaround on the RMCR report is 48 to 72 hours.

Buyer's market

The savings being passed on to consumers through Mornet EDI are part of Fannie Mae's "Showing America a New Way Home" campaign. The government-sponsored corporation launched this initiative in March to provide $1 trillion in lending to home buyers through the end of this decade.

Raines said the network, which is based on the American National Standards Institute's X12 EDI standard, will be key to helping reduce the average home buyer's mortgage origination costs from $2,500 to $1,500 by the year 2000.

The bandwagon

Fannie Mae is not alone in its efforts. For example, Federal Home Loan Mortgage Corp., or Freddie Mac, is putting the finishing touches on an EDI network called GoldWorks, which the Reston, Va.-based mortgage-back securities provider is developing with Advantis for a targeted 1995 rollout.

Meanwhile, Computer Power, Inc. (CPI), a Jacksonville, Fla.-based mortgage loan servicer, has expanded its EDI network to include loan production under a recently revised system called the CPI InterChange, according to John Wolf, an executive vice president.

Executives at many of the service providers that have committed to Mornet EDI said they plan to establish similar connections with Computer Power and Freddie Mac. "Our position is that we'll do business with virtually every mortgage lender available. So depending on which networks the lenders will be accessing, we want to make sure that we'll be there, too," said Curt Culver, executive vice president at Mortgage Guaranty Insurance Co., a Milwaukee-based mortgage insurance provider.

Of course, any medium that provides faster and cheaper electronic mortgage originations will be most appealing to prospective home buyers such as Ted Rasch, a 33-year-old owner of The Guitar Store in Smithtown, N.Y., who is looking to purchase a home closer to his audio outlet by mid-1995.

When Rasch bought his first house in Uniondale, N.Y., in 1986, "the number of hours I spent sifting through the [mortgage origination] documentation was just monumental — not to mention the 90 days I spent sitting on pins and needles waiting for a response to my application," Rasch said.

According to Rasch, the mortgage EDI network that speeds the response on his next mortgage application and ensures the lowest available interest rates "is going to get my vote."

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Steven A. Mills, General Manager of IBM Software Solutions, will explore the topic, *"Objects: Not Just For Programmers Anymore."* See how objects have become the driving force in the way software is developed, purchased, delivered, and maintained.

David Taylor, Ph.D., President of Enterprise Engines, will discuss *"Business Engineering With Object Technology."* Find out how companies are using OT to improve productivity and increase profits.

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UPDATE №2

DISTRIBUTED APPLICATIONS FOR THE REAL WORLD · OBJECT WORLD

Profiles in Enterprise Automation

META Group, Inc.

By
Mike Rothman
and
Dale Kutnick

During the past five years, META Group has closely observed the transition in corporate computing from host-centric technologies to distributed computing and client/server applications. The reason for this migration is clear: corporations need to empower employees, giving them the freedom to access information across the enterprise, the flexibility to adapt to the changing business environment and the intelligence to perform complex tasks quickly.

These goals can only be accomplished with the development of a common technology infrastructure that enables lines of business (LOBs) to develop applications and eliminate protracted, centralized IT application development.

Managing Diverse Infrastructures

IT professionals originally built the underlying network and computing infrastructure. Unfortunately, the new environment's complexity did not end with installation of hubs, routers, PCs and Unix servers. Infrastructure management, not building, has become the focal point of many IT initiatives. Managing has become progressively difficult in multivendor environments, but increasingly important as mission-critical applications migrate to distributed networks. A new paradigm is being implemented to manage such heterogeneous environments, which are characterized by variable, "bursty" demand and unpredictable requirements.

In a distributed environment, this means capturing availability, fault and performance-level information across the infrastructure without being limited to a particular class of network segments or systems.

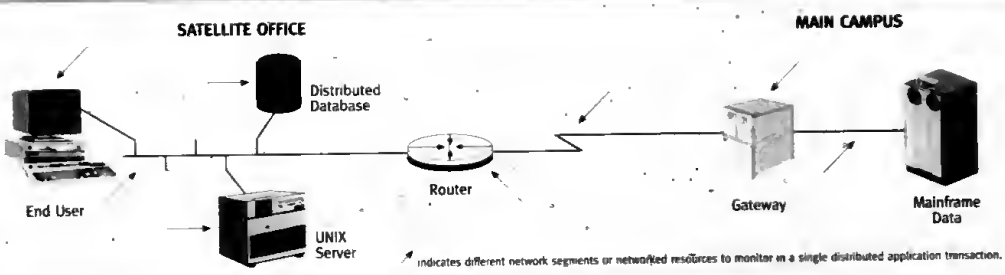
The result of this paradigm shift is a new breed of technologist, the "New Age IT Professional." This new breed is distinguished from its predecessors by its all-encompassing view of the technology infrastructure. No longer does it suffice to be a specialist in only networks, desktops or servers. IT survival hinges on providing tangible infrastructure services to business users and treating users as paying clients. This effectively repositions IT as a service provider focused on satisfying end-user requirements while hiding the infrastructure's inherent complexity.

Enterprise-wide View Essential

In order to fulfill these New Age service requirements, IT professionals require robust tools that provide an enterprise wide view of the infrastructure. This view must enable IT to proactively monitor and troubleshoot applications and systems, spanning all technology functions. End-to-end infrastructure management facilitates identification of a problem's root cause and its effect on end users. In a distributed environment, this means capturing availability, fault and performance-level information across the infrastructure without being limited to a particular class of network segments or systems.

Management information from the LAN, servers, networking devices, mainframe channels, wide area links, databases, etc. must be combined and correlated to provide an integrated view of the system. Figure 1 illustrates the various networked resources and segments affected by a single distributed application transaction. Thoroughly understanding distributed applications from a system perspective enables IT professionals to better manage their resources.

IT professionals encounter two significant challenges in realizing the New Age paradigm. First,



A single system management of all critical components is essential to ensure the availability of service in a distributed environment.

gathering information from diverse, multivendor environments often forces IT to use multiple, disparate element management systems (EMSs). The inability to communicate and integrate information among multiple EMSs, however, yields an incohesive management view of the system. The IT professional needs a single management system with distributed components capable of monitoring all elements.

Using a single system to monitor networked resources provides operating efficiencies through consistent command sets and graphical interfaces, standard report formats, etc. More importantly, a single system fosters the data integration required by managers to gather and analyze information.

The second challenge is overcoming the geographic distribution of networked resources throughout the enterprise. Budget pressures often push end-user-to-IT administration ratios upwards of 150-200:1, negating the ability to locally staff and monitor the enterprise. This forces network professionals to remotely monitor distributed networks and systems. Using a distributed system to remotely manage sites from a centralized location and console is required if the goal is to eliminate excessive management overhead in terms of personnel and travel expenses.

An ancillary benefit of end-to-end infrastructure management is the ability to historically track network computing availability. This information provides IT professionals with an indication of infrastructure trouble areas and enables capacity planning and implementation ahead of the usage curve.

Using a single system to monitor networked resources provides operating efficiencies through consistent command sets and graphical interfaces, standard report formats, etc. More importantly, a single system fosters the data integration required by managers to gather and analyze information.

Service Level Agreements

A common thread between repositioning IT and infrastructure management is the need to tailor technology solutions to user requirements. Service-level agreements will bind the user to the IT organization, forcing IT to deliver high quality, quantifiable services that reflect future business directions. To survive in a distributed computing environment, New Age IT Professionals need to develop robust management systems that provide an end-to-end view of the technology infrastrucutre, and allow them to offer LOB end-user service level agreements that bind IT to users, enabling technology to favorably impact the bottom line.

Amoco: Managing the Complex Migration to Distributed Computing

In fiscal 1993, when the petroleum industry experienced a devastating downward cycle in world crude oil prices, Amoco, the oil processing and refinery giant, increased its net income by more than 114 percent — from $850 million in 1992 to more than $1.8 billion. Despite some of the most difficult economic and industry conditions in recent memory, Amoco achieved its second best fiscal year ever, generating $28.6 billion in revenues.

Amoco's chairman, H. Laurance Fuller, attributes the success of his Chicago-based company — which also continues to be the largest producer of natural gas products in North America — to a corporate-wide focus on cutting costs, improving efficiencies and sharply aligning operations with key business strategies.

At the heart of this corporate strategy has been an all important and richly rewarding move toward distributed computing. The positive, bottom-line benefits of this transition include dramatically reduced operating costs and infinitely more flexible systems that respond rapidly to advances in technology. Most importantly, there has been an exact matching of urgent business needs with on-target technology solutions.

This transition has not taken place without substantial risks. Amoco discovered that servicing and supporting a complex, distributed, multivendor, multiplatform systems enterprise is more costly and difficult than anyone anticipated.

The need to meet this diverse challenge made COMMAND/Post, Boole & Babbage, Inc.'s premiere suite of interactive network management software, an integral part of Amoco's strategic shift from host-centric to client/server computing, says Larry Kreighbaum, senior staff computer analyst at Amoco's Tulsa-based data center.

Professional Tools For Experts

If Amoco were going to depend on a distributed architecture for mission-critical applications, COMMAND/Post would provide the safeguards necessary to make sure those applications kept running, night and day.

Amoco maintains master control over its local networks from one central site.

This is a daunting task. Amoco's vast communications infrastructure literally crisscrosses the globe with multiple TCP/IP and T-1 networks, as well as thousands of remote servers, modems, multiplexors, DSUs and routers that keep the thousands of Amoco employees throughout multiple countries on-line and productive.

Kreighbaum gives an example to illustrate the importance of this network. "We have a small remote Amoco office that uses a Sun Sparcstation to interact with our Tulsa-based IBM mainframe every night," he says. This is a critical application, since that office needs to download current pricing information from Amoco's Tulsa-based host DB2 database without fail in order to keep working the next business day. "If anything goes wrong, the managers of that office want to know immediately," says Kreighbaum. "Even if it means being called at home in the middle of the night."

Before COMMAND/Post was installed, each night this remote Amoco site running the mission-critical pricing application had to manually dial the Sparcstation to make sure the transaction had been successfully completed.

Now all this is unnecessary. If anything goes wrong with that transmission, COMMAND/Post detects it, and sends an automatic alert to the member of Kreighbaum's staff who is on call that evening. Immediate action is taken, catastrophes are prevented and the manager of that business unit sleeps soundly at night.

Making Mission-critical Reliability Mission-possible

COMMAND/Post has also proved invaluable for other distributed, mission-critical applications at Amoco.

Take the corporate E-mail system, on which everyone from CEO Fuller to the mailroom clerk in Amoco's Alaska refinery depends upon to communicate effectively. Their messages must be transmitted 24 hours a day between a dozen worldwide Hewlett-Packard 9000 series Unix servers running OpenMail and the Tulsa-based IBM 3090 running PROFS.

This application is so critical that

COMMAND/Post sends continuous probes through the myriad connections and gateways to ensure they are operating smoothly. If there are any problems, an alarm is triggered in Tulsa while an automated fix is performed. COMMAND/Post also acts as an all-important security checkpoint to Amoco's corporate network; should any unauthorized users attempt to break into the network through a dial-up modem or unauthorized Internet access, COMMAND/Post sounds the alarm.

Implementing A Total Solution

Amoco learned early the difference between vendors who promise and vendors who deliver.

Too many corporations moving into the client/server world succumb to the entreaties of distributed software vendors who promise to deliver monitoring and diagnostic tools for their hardware, software and communications products.

Don't believe their claims, warns Kreighbaum.

For starters, these tools tend to be proprietary, meaning they are only effective for a particular vendor's products. At Amoco, for example, before COMMAND/Post was installed, status information on the worldwide systems enterprise was sent to a jumble of places: alarm printers, alarm logs and various vendor-specific management systems. Recalls Kreighbaum, "It was terribly disjointed." Amoco operators thus spent a great deal of their time running from terminal to printer to telephone in order to keep track of all the incoming data from the various systems.

"When you're trying to fix a critical network that has crashed on the other side of the state, country, continent or even world, that's a real problem," says Kreighbaum.

Not only was this reliance on proprietary systems inefficient, but it posed enormous hidden costs for Amoco through the time, effort and money it took to train and support the IS professionals like Kreighbaum.

"You end up training your technology staff to use a lot of different management tools that basically do the same thing in lots of different ways," he says. Given Amoco's corporatewide direction to slash costs to the bone, this fragmented approach to application and network management was unacceptable to senior management.

Putting The "Total" In Total Quality Management

Today, Kreighbaum and his staff use COMMAND/Post to keep a watchful eye on Amoco's worldwide systems and networks. "We monitor from the application level down to the circuit level, and everything in between," he says. COMMAND/Post constantly shifts through and filters the massive amounts of performance and capacity data coming in from networks around the world, intelligently selecting what is important — based on criteria users can select and change at will. It then either alerts an operator, sets a recovery procedure into action or stores the data in a database for record keeping.

> "We monitor from the application level down to the circuit level, and everything in between."
>
> — *Larry Kreighbaum*
> *Senior Staff Computer Analyst*

Best of all, says Kreighbaum, given Amoco's increasingly diverse distributed environment, COMMAND/Post's ability to communicate with "just about anything" means that the need for multiple diagnostic toolkits from multiple vendors is completely eliminated.

> Too many corporations moving into the client/server world succumb to the entreaties of distributed software vendors who promise to deliver monitoring and diagnostic tools for their hardware, software and communications products.

Kreighbaum's staffers now keep their fingers on the pulse of Amoco's computing by sitting back and watching their X-Terminals. And they do it better than before with fewer resources. This is critical given Amoco's commitment to increased worker productivity and efficiency. "The system automatically filters out the noise, and highlights the things that really matter," says Kreighbaum. "Our operators therefore are infinitely more effective."

The bottom line is increased customer satisfaction. Like so many other data centers, Amoco is moving toward a total quality management service philosophy that revolves around identifying key customers, whether they happen to be located inside or outside corporate walls, and achieving ever-higher levels of satisfaction for them.

In short, says Kreighbaum, COMMAND/Post allows Amoco to do more for the same amount of money, and to make its employees more productive through the increased availability and reliability of system resources. "We've spent years looking for a tool like this," says Kreighbaum. "We couldn't do our jobs without it."

LILCO: Using Technology as a Strategic Weapon to Keep Long Island Lights and Hearths Burning

The loss of electricity represents a major inconvenience for any business or household. For Long Island Lighting Co. (LILCO), an electrical and natural gas utility that prides itself on stellar customer service — the loss of electricity is devastating.

Unattended field utility problems can result in costly repairs. In addition, there are the fines handed out by the Public Service Commission (PSC). "The PSC gives us an allotted period of time in which to respond to a gas emergency. If we don't act within that time, we're fined," says Bill Rochford, a specialist in LILCO's nine-person Command Center, which is responsible for keeping LILCO's 25 offices and plants on-line around the clock, every day of the year.

LILCO's Command Center monitors mission-critical applications running on a plethora of disparate systems, including an IBM 3090 mainframe host and 27 Digital Equipment VAX systems. More than 2,000 PCs are linked via Ethernet and token ring LANs, and there are dozens of roving LILCO computer-equipped repair trucks that use the innovative Computer Assisted Radio Dispatch System (CARDS) to immediately react to problems in the field.

Boole & Babbage, Inc.'s COMMAND/Post, installed last year, has helped LILCO to leverage its massive system infrastructure into a competitive weapon par excellence.

Thanks to COMMAND/Post, LILCO employees can depend on the Command Center for such diverse tasks as billing, generating customer notices about service changes, ensuring that payroll and equipment maintenance applications stay operational and keeping LILCO's sophisticated network of mobile service technicians in touch with field emergencies.

Those technicians rely heavily on LILCO's all-important CAROS application.

Local LILCO field technicians have Motorola Mobile Data Terminals in their repair trucks. When a customer calls in with a repair request, it is immediately radioed via CARDS from the IBM mainframe to the nearest technician's truck. No time is wasted and each customer is served promptly.

Downtime Not An Option

Prior to installing COMMAND/Post, this presented a considerable challenge. LILCO's complex multiplatform, multivendor environment required constant monitoring of diverse networks and systems that strained the time and energy of the Command Center staff. Even filtering through the thousands of "status: normal" messages was an exhausting process.

No longer. Now, interruptions in communications between any LILCO computer — mainframe, minicomputer, or mobile terminal — are immediately detected by COMMAND/Post. Solutions are promptly displayed on the COMMAND/Post screen in full-color graphics and automatic service procedures begin at the same time that Command Center staff members are notified. As a result, most problems are fixed before anyone is even aware they exist.

Keeping Costs In Line

COMMAND/Post has also allowed LILCO to hold down costs while continuing to grow capacity. Prior to installing COMMAND/Post, 11 separate terminals were needed to track all the different systems from all the different vendors used throughout LILCO's farflung operations. According to Clinton Strait, Command Center manager, "Now we just have one terminal that filters out the unimportant messages and highlights the important ones."

Significant corporate savings have resulted. This allows office space and personnel headcount to remain constant while LILCO's business continues its multiyear growth spurt.

Blackout Doesn't Mean Red Ink

Here's an example of the dramatic COMMAND/Post difference: The worst case scenario for any electrical plant is a total blackout for its customers. In early August, LILCO's Northport electrical station lost power.

At Hicksville, COMMAND/Post immediately detected the power failure. "Before the remote Northport workers had time to call, we were calling them to find out what had gone wrong," recalls Rochford. "They were amazed." This represented a complete reversal of the way things used to be. Now it's not uncommon for LILCO employees and customers to be blissfully unaware that service has even been temporarily interrupted.

"With COMMAND/Post, responsiveness to customers' needs — whatever that might be — is never a problem," says Rochford.

LILCO field technicians rely on mobile data terminals to get their assignments.

Paving the Info Superhighway by Concentrating on Efficiency, Customer Service

At the beginning of fiscal 1993, Bell Atlantic Corp. chairman and CEO Raymond Smith set some ambitious goals for the Philadelphia-based former Baby Bell. Among these:

- Lead the nation in deployment of products and services for the so-called information superhighway
- Restructure internal operations in order to focus more intendy on providing stellar customer service
- Continually add new "value-added" network and telecom services to its already strong product line.

And — last but not least:

- Strive to make Bell Atlantic's core businesses more cost-efficient and market-focused.

At the heart of this complex corporate strategy are myriad technology investments and re-engineering projects that will enable Bell Adantic to maintain a strong and profitable revenue stream while preparing the groundwork for future growth. Chief among these re-engineering initiatives is a data center automation project jump-started in October 1993 that will replace formerly inefficient manual ways of monitoring key Bell Atlantic systems with a streamlined "command center" approach.

Thanks to COMMAND/Post, Boole & Babbage's multivendor system management software, this vast automation project will pay for itself in just 12 months.

"The type of productivity increases and efficiencies we're already seeing would have not been possible without COMMAND/Post," says Ed Donahue, manager of data center automation for Bell Adantic's Mid-Atlantic region, which covers the six-state area of New Jersey, Pennsylvania, Maryland, Virginia, West Virginia, Delaware and Washington D.C.

Prior to installing COMMAND/Post, Bell Adandc needed to keep multiple computer operators stationed at multiple consoles in order to monitor error messages and transaction volumes on this and other critical systems. The costs of doing things this way were high, and the results were less reliable than would be ideal. Bell Atlantic management wanted to boost the overall quality and reliability of maintaining the mission-critical systems.

"Our internal clients must have these system resources available at all times. Downtime is unacceptable. Downtime impacts Bell Atlantic's ability to service its customers.

Acquiring And Training An Automatic 'Watchdog'

Donahue's responsibility since last autumn is to oversee the automation of "special systems" — primarily defined as those computers running some flavor of the Unix operating system — in the six massive data centers scattered throughout Washington, D.C. and the six states of Bell Atlantic's Mid-Atlantic region.

This means Donahue has jurisdiction for more than 300 systems in all, including mainframes, midrange processors, multiprocessing servers, as well as numerous Unix workstations and desktop PCs. A TCP/IP wide-area network (WAN) spans the six centers.

To date, COMMAND/Post already runs more than 1 million automated "checks" per month on mission-critical Bell Atlantic systems, says Donahue — and that number will only grow as full deployment of the software is reached. During these now-routine monitoring activities, COMMAND/Post averages 10,000 started and stopped tasks per month that would have previously required human intervention.

One Giant Step For The Enterprise

Bell Atlantic's three-phase automation project is on-time and on-budget, with impressive progress in two of its phases. These include:

- Consolidate consoles. This phase involves using COMMAND/Post's capability to peek into multiple and disparate systems from a single station. Instead of requiring a separate monitor for each system, Bell Adantic will consolidate the number of monitoring consoles for its 300 systems.
- Provide programming "alerts." This stage will turn 24 hour-a-day monitoring of critical Bell Atlantic computer functions over to COMMAND/Post, with custom "rules" built into the system that determine which error messages or transactions require immediate action or attention.
- Set escalation routines. This final phase will prescribe specific "chain of command" and alarm procedures if a problem is detected by COMMAND/Post that can't be diagnosed and/or fixed automatically.

> Myriad technology investments and re-engineering projects will enable Bell Atlantic to maintain a strong and profitable revenue stream while preparing the groundwork for future growth

Why choose COMMAND/Post? "We have a staff of six dedicated to this automation project," Donahue points out. "COMMAND/Post technology minimizes the training and programming cycle permitting resources to be utilized on systems automation."

COMMAND/POST

The Number One Solution for Single-point Management and Automation of Distributed Environments

With UNIX-based COMMAND/POST™, you can establish a single point-of-control for your entire enterprise, regardless of the devices and platforms it contains. From one powerful, centralized workstation, you'll have a consolidated, integrated view of all elements and management systems in your enterprise.

Find problems before they find you!

COMMAND/POST collects message data generated by essentially any information technology (mainframe, minicomputer, WAN, LAN, voice and legacy systems) and synthesizes that data to a single point-of-control. Next, COMMAND/POST correlates, refines and unifies that data to produce truly useful consolidated displays. Along with its comprehensive automation component, COMMAND/POST delivers unprecedented system management capabilities that let you proactively manage your enterprise.

Many of the world's most successful, forward thinking companies are already using COMMAND/POST to proactively manage their demanding, mission-critical enterprises. A partial list of current COMMAND/POST customers includes:

Aerospatiale ▾ Alcatel ▾ Amoco ▾ Asea, Brown, Boveri ▾ Bell Atlantic ▾ Corpoven ▾ Credit Lyonnais ▾ Dialog ▾ LM Ericsson ▾ GTE ▾ Italian Railway ▾ Japanese Newspaper ▾ Long Island Lighting Company ▾ Mayo Foundation ▾ Metropolitan Life ▾ Mercury Communications ▾ Meridian Oil ▾ Motorola ▾ Nippon Trust ▾ Nomura ▾ Northwest Airlines ▾ Options Clearing Corp. ▾ Pacific Bell ▾ Panasonic ▾ Philips ▾ Polygram ▾ PSE&G ▾ Rhone Poulenc ▾ Salomon Brothers ▾ Shell Oil ▾ SPRINT ▾ Stone Container ▾ Swiss Bank ▾ UniBanco ▾ US Air Force ▾ US Army ▾ Wells Fargo ▾ Williams Cos. ▾ World Span

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- Immediate increases in availability and service
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- Dramatic reductions in operations complexity
- Fewer management consoles and terminals
- Efficient, economical Help Desk operations

Apply the power of client/server technology and take control of the management functions for all your hardware, software, hosts, minis and networks–regardless of the brand.

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MM-0886-1194

Information superhighway

Predictions, publishers and the press on the 'net

A semiregular column with items of interest and amusement from the Internet.

The highlight of an otherwise dull Society for Information Management videoconference on the National Information Infrastructure two weeks ago was the provocative predictions of **Warren McFarlen** of the Harvard Business School. McFarlen enlivened the feel-good proceedings considerably when he said the coming on-line revolution would take "30 to 70" years to mature and would be "deeply disruptive," threatening tens of thousands of U.S. jobs as work is globalized.

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What's in a name? Plenty if you're the former **Mosaic Communications Corp.**, which will now be known as **Netscape Communications Corp.** The Mountain View, Calif.-based firm had been under increasing pressure from the National Center for Supercomputer Applications (NCSA) at the University of Illinois, Champaign-Urbana, holder of trademark and licensing rights to the graphical internet browser of the same name. (Paradoxically, Mosaic Communications' founding team includes some of the key developers of NCSA's Mosaic, and the company was not a licensee of NCSA's Mosaic.) It's likely, too, that the several commercial licensees of NCSA's Mosaic added to the call for the name change after Mosaic Communications posted its Netscape internet navigator on the internet for free downloading last month.

*****

The name game is getting intense for new ventures. Aside from checking government trademark registries to see what names have already been taken, a start-up better check its internet E-mail address against the registry of Internet domain names, according to **Master-McNeil, Inc.**, a name consulting firm in Berkeley, Calif. The problem is that some well-known corporate identities, such as fox.com, coke.com, abc.com and mcdonalds.com, have been snapped up by little-known entrepreneurs [CW, Oct. 10]. So, the consulting firm has added an Internet check to make sure an appropriate E-mail address is available for the names it recommends. For information, see the firm's World-Wide Web server at http://www.naming.com/naming.html.

*****

Which of the commercial companies are joining the ranks of the Internet-connected? Inspect the Commercial Sites Index, originally created by Henry Houh at the MIT Laboratory for Computer Science in January and now being maintained by **Open Market, Inc.** in Cambridge, Mass. By mid-November, there were more than 830 listings in the directory, which is said to be growing at 10% per week. Open Market has a searchable database for the listings and plans to add listings by product category and geography in the future. Unlisted companies can add themselves to the list via an on-line form. Point your browser to http://www.directory.net.

*****

Statistics about Internet growth are revealing and amusing. According to the November issue of *The Internet Index*, the number of World-Wide Web servers named *www.something.com* is 1,047. The index also notes that at current growth rates, every person on the planet will be on the Internet in 2003. A copy of the index, annotated with sources, can be found at http://www.openmarket.com/info/internet-index/current-sources.html.

*****

The index reports there are now at least 60 daily newspapers currently offering or planning to offer content on on-line services. Striking employees of *The San Francisco Chronicle* and *The San Francisco Examiner* put up a Web site just 18 hours after their strike began earlier this month. Pick up a copy at: http://ecnet.com:80/SF_Free_Press.

*****

Book publishers are getting into the act as well. **Gramercy Press** two weeks ago opened its doors to the internet, providing readers with a way to review Gramercy titles. Point your browser at http://www.mci.com/gramercy/intro.html.

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Please keep us posted with your views, news and questions about items published in this space. Contact us electronically at ellis@cw.com.

— Ellis Booker, Gary H. Anthes and Mitch Betts

Is your data secure?

Probably not, but top management has taken little action

By Gary H. Anthes

■ Threats to corporate information security have increased in the past year, but top management is often woefully unconcerned about security issues, according to two recent surveys of information systems managers.

In a poll of 95 security managers attending the recent annual Computer Security Institute conference, more than nine out of 10 said corporate computer systems and networks are more at risk than a year ago (see chart). Risks are "much greater" than they were a year ago, according to 41% of the respondents.

Elliott T. Schmidt, systems security administrator at Provident Life & Accident Insurance Co. in Chattanooga, Tenn., said he had not seen any increase in security breaches at Provident. However, he said many organizations are increasingly nervous about security because of layoffs.

"We are in the process of downsizing," he said. "People are walking around looking over their shoulders, and physical security is heightened right now."

The survey, sponsored by Security Dynamics Technologies, Inc. in Cambridge, Mass., said disgruntled former employees are the biggest threat to security, with 94% citing that risk.

Other kinds of risks

Brent Frampton, a computer security specialist at the U.S. Department of Energy's Energy Information Administration, also cited an increase in system complexity as a cause for greater security exposure. "There is all this new technology out there, and if you don't test it and make sure it does what it is supposed to do, that provides a risk."

Schmidt and other users also pointed to the trend toward decentralized computing and the movement to connect to the Internet as reasons why risks are greater now. "Ten years ago, we had a mainframe here in the home office, and the only way to get access was to get physical access to the building," Schmidt said. "We now have access from all over the U.S. and Canada, and it's growing daily."

"Information security is not being viewed by top management as sufficiently important," concluded another survey sponsored by Ernst & Young and *InformationWeek* magazine. "In the haste to implement new systems and move function closer to the ultimate user, security has frequently been overlooked."

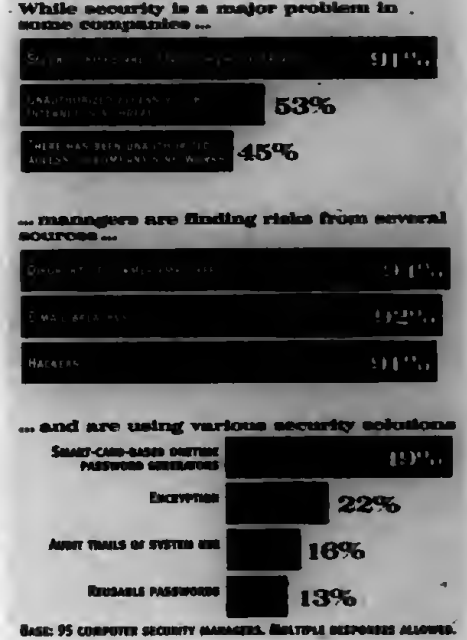
In the survey of 1,271 corporate officials — 61% of whom were IS managers — 42% said senior management in their organizations believes that information security is "somewhat important" or "not important." Only 22% said senior management views it as "extremely important."

The survey results also showed that the perceived importance of information security has "deteriorated" in the past year. According to Ernst & Young partner Dan White, national director of information security effectiveness, that may be because top management is preoccupied with competitive pressures that are not addressed by good security.

"Everything is cost reduction, cost reduction, cost reduction," White said, particularly in the health care, manufacturing, airlines and insurance industries.

Paying no heed

Despite the perception that risks are increasing, 50% of respondents who said they are running mission-critical applications on LANs said their LANs offer inadequate security. Of those organizations reporting Unix security as inadequate, 68% nevertheless said they are running critical systems on Unix platforms.



Basis: 95 computer security managers. Multiple responses allowed.

Source: Security Dynamics Technologies, Inc., Cambridge, Mass., and Computer Security Institute, San Francisco

White, who called that finding "amazing," said cost pressures may be to blame. "In some cases, senior management is just saying, 'I want this implemented on time, and I don't care about security,'" White said.

In other cases, White said the impatience of the IS manager may be to blame. "We want to get familiar with a new technology, so we just implement it and say, 'Oh, maybe we'll go back and add security later.'"

Schmidt said Provident has a new chief executive officer who came from the security-conscious banking industry. His first move was to hire a security-savvy chief information officer, he said.

"It's very refreshing because we have an ear now," Schmidt said. "In the past we haven't, and it can be an uphill battle. If you don't have someone who is very security-conscious, you are seen as just an expense."

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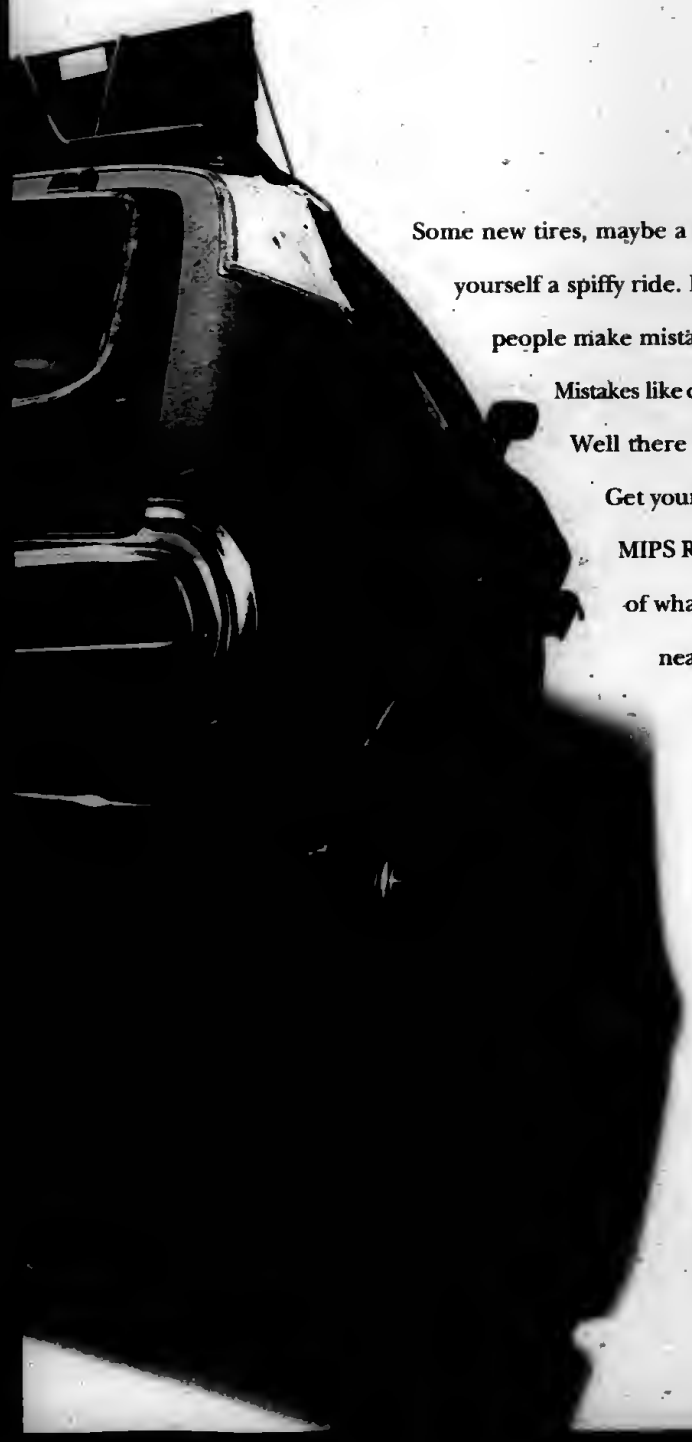

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Newly formed Bay Networks eyes future

One could say the roller coaster that looms behind the parking lot at Bay Networks, Inc. in Santa Clara, Calif., is representative of the ride the internetworking company has experienced since it was formed from the July merger of SynOptics Communications, Inc. and Wellfleet Communications, Inc.

Computerworld staff writer Stephen P. Klett Jr. recently met with Andrew Ludwick, Bay Networks president and chief executive officer, to discuss the company's long-term vision and customer migration plans.

CW: What have the past few months been like for Bay Networks?

A: We use the term rope-a-dope to describe it because until the merger was completed with shareholder votes, we really couldn't do much. So our competitors got to say anything they wanted, and we had to take the punches. Now we get to come off the ropes.

CW: Bay is working to develop a "next-generation" platform that will merge Asynchronous Transfer Mode [ATM] and LAN switching and routing capabilities — which you call the "new shiny thing." Where does this leave the Lattis System 5000 hub user, seeing as this is also a next-generation platform and has not been shipping for long?

A: We haven't made an announcement of what the platform for the next-generation router will be, but it's hard to conceive that it won't be the 5000, the way we're thinking now.

CW: If the ATM switch/router is not based on the 5000, will customers have a hard time?

Bay Networks' Andrew Ludwick: *It's hard to conceive that the platform for the next-generation router won't be the 5000*

A: If by using some other architecture you could dramatically improve the value to customers, they probably wouldn't have a big problem. It's possible that you'd get it in two versions, but this is all hypothetical. You might get it inside the 5000 or outside the 5000 in two form factors. Everything we are working on will be available for the 5000.

[According to Ludwick, Bay Network's road map to the "new shiny thing" will start with a 150M bit/sec. ATM interface — called Tsunami — for Wellfleet's Backbone Node router, followed by the addition of ATM capabilities into the 5000 in late summer next year. That will be followed by the Virtual Network Router, a backbone node router architecture with higher-performance packet processing and much more I/O to handle many virtual network connections.]

CW: Obviously you think the best plan is to have a single company integrate routing/switching capabilities rather than a partnership?

A: I wouldn't knock partnerships. The issue here is that to do this new shiny thing, we believe we actually need to commingle the code and commingle the thought process to create it. So when we design this product from a fundamental architectural level and then implement it in code, we've got to have the two core competency engineers sitting side by side. We couldn't do that with a partnership.

CW: How are you going to bring these two core groups of engineers together, seeing as they are based on opposite sides of the country?

A: We've set up three PBUs [private business units] for hubs, routers and synergy products. The PBU is a new entity inside both companies. The synergy PBU will consist of a small number of people, probably fewer than 10. Maybe some people will actually relocate. But the intent right now is that we won't have any relocations of people — to avoid disruptions in our delivery cycle.

CW: To what extent are your core hub and router engineers in synergy with one another in their thoughts on the best way to merge these technologies?

A: We're doing this at the beginning of the product life cycle, which will circumvent a lot of the religious debate. Wellfleet had not started its ATM effort. SynOptics had not started its routing effort. So we're starting with a clean sheet of paper.

CW: A major criticism from Wellfleet shareholders when you announced the merger was that Wellfleet was on a real roll, so why was it teaming up with this commodity-like hub company that was flat for three quarters? What did you tell them?

A: The biggest hurdle was definitely convincing our shareholders that now was the right time to do this merger. If we were to wait another two quarters, we'd be getting this product into the marketplace in 1997 or 1998, which would be too late. It's right to do it now for the reasons of clean slate and fast start.

CW: There's a perception that Cabletron is the fast mover and on the way up while SynOptics/Bay is stuck in the mud a little bit. What are you doing to counter this?

A: That perception will change with the momentum of our quarter-to-quarter business growth. The SynOptics business across the board is very robust. In fact, our business over the summer was much stronger than we had forecast. As Bay Networks reports its quarters, Wall Street will see the momentum change. When that happens — and I think it already has — that will quickly shut down Cabletron's claims.

CW: What is your advice to users sitting in the middle of this tug-of-war?

A: They should understand the growth of their networks in terms of internetworking traffic and virtualization. Start thinking ahead. They should have a strategy for a migration path so they can buy products that keep their options open and move them in a direction they want to go.

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Briefs

Retix offers ATM module

Retix has announced an $8,000 Asynchronous Transfer Mode interface module for its RouterXchange 7000 router family. According to Retix, Cisco Systems, Inc. is the only other router vendor to offer an ATM router interface.

MCI to employ new fiber

MCI Communications Corp. has announced that it will be the first long-distance company to deploy a new dispersion-shifted optical fiber made by Corning, Inc. The fiber will support several 10G bit/sec. channels on a single fiber.

Nextel/Motorola deal OK'd

The U.S. Department of Justice approved Nextel Corp.'s purchase of Motorola, Inc.'s specialized mobile radio (SMR) services, subject to Motorola divesting some of its 900-MHz SMR channels and the two firms' collective divestiture of 42 channels in Atlanta. The deal frees Nextel to form a nationwide wireless network based on Motorola's Integrated Radio System technology.

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SysKonnect, Inc. has announced the SK-Net ATM Sbus and the SK-Net ATM Extended Industry Standard Architecture (EISA), which are Asynchronous Transfer Mode (ATM) network interface cards.

According to the San Jose, Calif., company, the SK-Net ATM Sbus was designed for Sbus platforms such as Sun Microsystems, Inc.'s SPARCstation and SPARCserver.

The SK-Net ATM EISA was designed for Intel Corp. 1486 and Pentium platforms. Both are available in multimode fiber or unshielded twisted-pair Category 5.

Prices range from $1,395 to $1,895 for the SK-Net ATM Sbus and from $1,695 to $1,995 for the AK-Net ATM EISA.

▶ *SysKonnect*
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FTP Software, Inc. has announced Services OnNet 1.1 for DOS/Windows, a set of integrated applications for peer-to-peer networking in PC-based TCP/IP environments.

According to the North Andover, Mass., company, Services OnNet 1.1 for DOS/Windows lets users implement TCP/IP server applications on DOS and Windows PCs.

The product includes a Network File System server and a Dynamic Host Configuration Protocol server, both for Windows. Other features include file transfer and print services.

Services OnNet 1.1 for DOS/Windows costs $100.

▶ *FTP Software*
(508) 685-4000

Frye Computer Systems, Inc. has announced the Frye Network Management Platform for Windows-Statistics Display Rack 1.0, a module in Frye's centralized network management platform.

According to the Boston firm, the Frye Network Management Platform-Statistics Display Rack monitors and displays more than 200 server and node statistics and notifies network managers when user-defined thresholds have been exceeded.

Statistics include server utilization, dirty cache buffers, disk I/Os pending, packets transmitted and received and bytes transmitted and received. The polling interval can be changed for each cell.

Graphics can be displayed as a speedometer gauge, line graph, vertical bar chart, three-dimensional vertical bar chart or informational text panel.

The Frye Network Management Platform for Windows-Statistics Display Rack 1.0 costs $295 for the initial server license and $195 for each additional server license.

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ATM switch

CONTINUED FROM PAGE 55

On the LAN, where transmissions are Alpha-to-Alpha, congestion control does work. However, "congestion is not as big of an issue on a LAN because you're competing for a resource that's unlimited — the hub backplane," Nolle said.

Digital cannot be criticized too harshly for implementing proprietary flow control, one analyst said.

"Proprietary flow control will play a big role in ATM for the next 12 to 24 months because the flow control standards will take a while to come to market," said Greg Cline, program director at Business Research Group in Newton, Mass.

However, Nolle said, "Digital is not in the position to make congestion management decisions. They'll have to conform to whatever comes up in the marketplace."

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The Gigaswitch/ATM is a 52-port device for LAN backbones and workgroups. It supports 155M bit/sec. Synchronous Optical Network ports using a 10.4G bit/sec. switch fabric. Permanent and switched virtual circuits are supported. The ATMworks 750 single-slot adapter costs $2,499. Both products are available immediately.

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Capacity planning takes client/server steps

Closer Look: CAPACITY PLANNING

CAPACITY PLANNING is a crystal-ball projection of how much of the computer will actually be used by all of the systems software and applications inside the system. Capacity planners measure this usage based on simulation or mathematical models.

SIMULATION TOOLS allow users to create mock networks to gauge usage, while **MATHEMATICAL TOOLS** use formulas developed from previous performance data to calculate expected resource consumption. In the mainframe world, capacity planners measure the use of the host's CPU, memory and disk storage. With distributed systems, components such as the server and client machines, the database and the network can be measured.

By Craig Stedman

■ Great Western Bank has a simple approach to capacity planning for client/server systems: Just don't do it.

"When there's a performance problem, we get involved to try to find out where it is," said Bill Neuser, manager of capacity planning and support at the Northridge, Calif.-based bank. But up-front performance modeling for its distributed network is in the "very primitive" stages, he added.

Great Western is hardly in a category by itself. While capacity planning is a ritual part of mainframe life, it remains in its infancy on the client/server side because of a double whammy of immature tools and the lack of a widespread user consensus, which is necessary in an era of commodity hardware.

Asbestos approach

Doug McBride, one of the board members at the Computer Management Group, a professional society for capacity planners and performance managers, noted that many companies have been using "the asbestos-boot solution" for dealing with client/server performance issues.

"You put something in place, and once you have a problem, you put on your asbestos boot and try to stamp the fire out," said McBride, who works as a program manager at Hewlett-Packard Co. The path of least resistance is often to simply "throw more iron and wire at a network," he added.

The cost of systems, memory and storage "has become so cheap that capacity planning is less important" than it was during the heyday of the mainframe, agreed Stan Johnson, director of information systems at Worldport LA, the port authority in Los Angeles.

The paybacks are also less evident in client/server environments, said Igor Stenmark, a research director at Gartner Group, Inc., a consulting firm in Stamford, Conn. Mainframe capacity planning might save a company millions of dollars in hardware upgrade costs, but a client/server project would likely yield far less savings for the same amount of expense, he added.

Have to face it sometime

Nevertheless, Stenmark and other analysts said it will get harder for companies to ignore capacity planning as networks proliferate and take over more of the critical data processing from mainframes. The difficulty of pinpointing bottlenecks in an ever more distributed environment makes a compelling argument for doing up-front planning, they said.

However, users might not like what they see when they take a look at the current crop of distributed modeling tools.

"There's not as much depth of tools in client/server as there is for mainframes, and that's been a real problem," said John Elcock, assistant vice president of computer resource management at General Accident Insurance Company of America in Philadelphia. And because client/server systems are scattered, by their very definition, there is no one place from which to gather data. "The guys trying to do client/server capacity planning can't really look into the system and get the same information that you can get from the mainframe," Elcock said.

What's there to buy?

Worldport LA also found available tools lacking when it was putting together plans for its first client/server project, a construction management application scheduled to go online in February 1995. "As far as anything we'd be willing to buy, there was nothing out there," Johnson said. "They've got to be more predictive than what we've seen."

Some first tries at end-to-end tools for client/server capacity planning are available now (see chart below). But even software vendors say the tools are still too complex to use and require customers to do a yeoman's work to gather and feed in performance measurements.

"These are not the kinds of tools that you can buy off the shelf, load up on your system and be effective using them," said Don Hazell, director of sales and marketing at Advanced System Technologies, Inc. in Englewood, Colo. Advanced System Technologies, which next week is expected to announce a marketing deal with Legent Corp., typically will not sell its Qace software without at least a four-week consulting contract to help users get on their feet, Hazell added.

Florida Power Corp. in St. Petersburg, Fla., got useful results from SES, Inc.'s SES/Workbench software while it was planning a customer service application that will be implemented in March, said Michael Gresh, a capacity planner at the electric utility. However, the final usage models were "rough and high level," and just getting that kind of quality was hard, he noted.

"You have to bring a wealth of knowledge to make [client/server modeling] accurate," Gresh said. Libraries of canned building blocks that are common on the mainframe side "don't exist yet for network components," he added.

Even after a company has client/server systems in place, getting performance data for use in ongoing capacity planning can be difficult, costly and time-consuming, according to analysts. Measurement tools typically gather data from just a piece of the distributed environment, forcing customers to use separate products to get usage information from servers, clients and LANs.

"Getting the data is probably beyond the capabilities of most small to medium shops," said Paul Mason, research manager for enterprise systems management at International Data Corp. in Framingham, Mass. "It's only the big guys who can afford to have a full-time person on staff to do that."

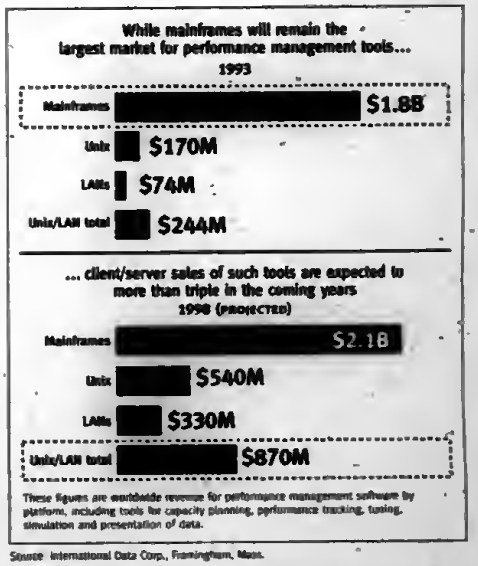
All bets are off

Given the current state of flux in the market, it is difficult for analysts to make any bets about which of the current tools are likely to survive over the long haul.

"We are really at the infancy stage of this market, and you can't call anybody a leader now," Stenmark said. "The different players are essentially just trying to get through the starting gate."

Because of the uncertainties, users should focus first on laying out a detailed plan for doing client/server capacity planning, "rather than just jumping in and buying a product," he said.

And once the plan is in place? "Pray," Stenmark advised.



Source: International Data Corp., Framingham, Mass.

A sampling of tools available for capacity planning in client/server environments

Advanced System Technologies, Inc. (Englewood, Colo.)	Qase	Macintosh; Unix versions due Q1 1995	Supports both analytic modeling and network simulations
Bachman Information Systems, Inc. (Burlington, Mass.)	Bachman/WindTunnel	Windows and OS/2	Analytic modeling tool with reporting and analysis capabilities
BGS Systems, Inc. (Waltham, Mass.)	Best/1 Performance Assurance for Unix	AIX, HP/UX, SunOS and Sun Solaris	Analytic modeling tool with real-time monitoring and alert
SES, Inc. (Austin, Texas)	C/S Composer and SES/Workbench	AIX, DEC Ultrix, HP/UX, SunOS and Sun Solaris	Simulation tools with back-end reporting and analysis capabilities

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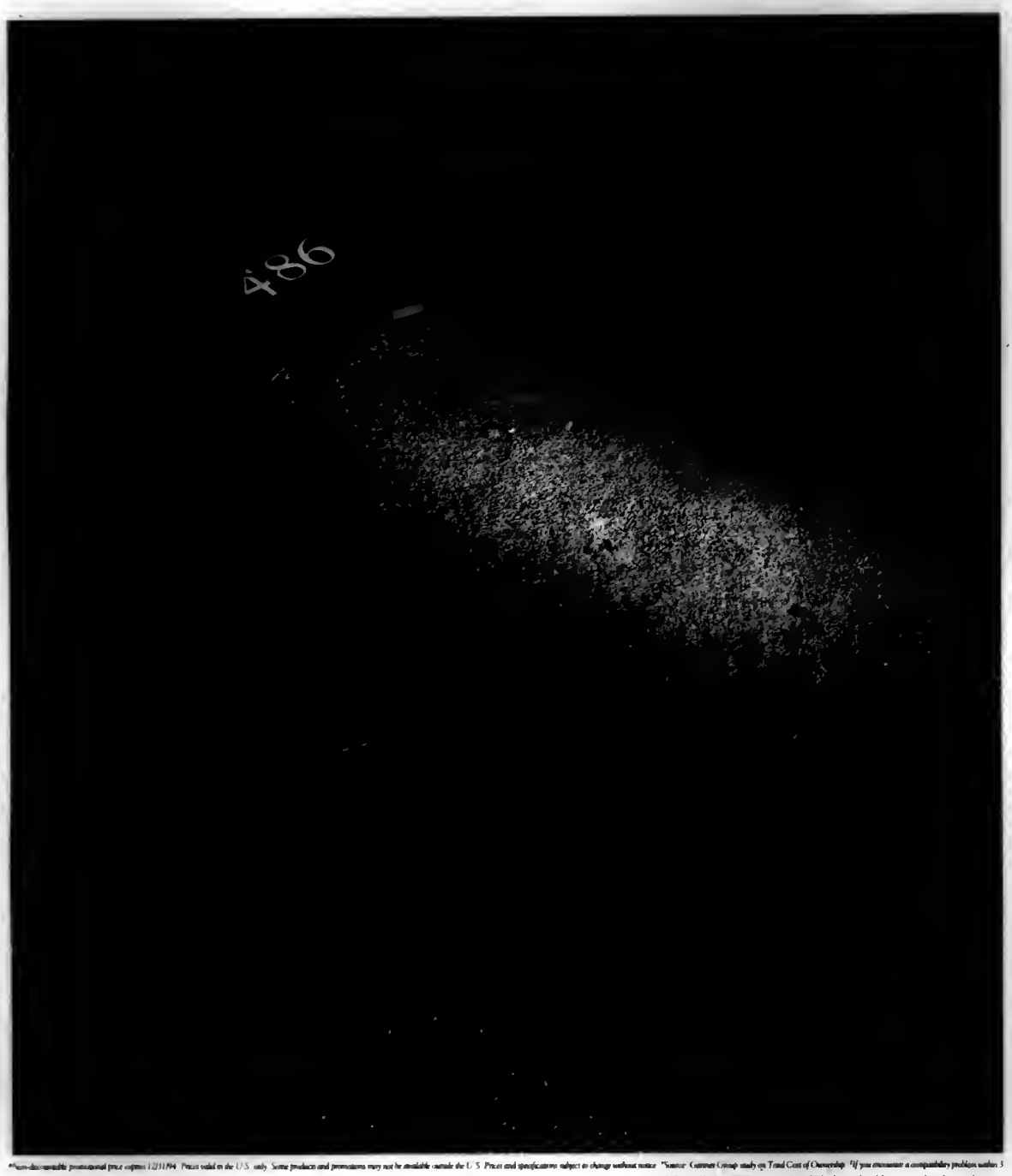

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TO THE DESK · ON THE DESK · OFF THE DESK · DELL SAVES YOU

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Users like SmartStream 3.0 customization

By Rosemary Cafasso

Dun & Bradstreet Software's SmartStream 3.0, launched earlier this month, is picking up some solid initial feedback from users and analysts, who said this latest release could give the company its best chance yet in the client/server market.

"It puts them on an equal footing" with other high-end players such as SAP America, Inc., said Ed Black, a senior analyst at Aberdeen Group in Boston. "It could satisfy the high end of the market that is looking for a complete suite."

SmartStream 3.0 upgrades existing client/server components for financials, human resources and decision support. It also marks the first shipment of the manufacturing and distribution modules, which were the biggest gap in D&B Software's offerings.

Release roundup

Release 3.0 includes a purchasing module that can be used with both the financials and the manufacturing pieces. In addition, 3.0 will include the first release of StreamBuilder, a customization tool set that allows users to tailor SmartStream modules without mucking about in the core code.

Mario Bartolozzi, manager of business systems at The Toronto Hospital, uses the SmartStream decision-support software. He said he wanted to install the financials but decided to wait for Release 3.0, which he said has the full spectrum of functionality he needs. As of last week, Bartolozzi was awaiting the arrival of the code.

"This is really the release where they finally have, in my mind, fully functional applications," Bartolozzi said.

Financial Stream 3.0 includes a financial allocation module and performance tuning on several other components, including asset management, accounts payable, accounts receivable and international reporting, according to D&B Software.

David Pickles, technology manager for the human resources information systems project at Weyerhaeuser Co. in Tacoma, Wash., has installed Human Resources Stream 3.0 specifically to test the StreamBuilder component. Currently, the staff is using it to extend certain fields in the human resources applications for which Weyerhaeuser requires more detailed information than what the basic D&B Software package provides.

"We don't want to heavily customize a product and have it be very expensive to then install the new release," Pickles explained.

Briefs

IBM offers SP2

IBM delivered a 512-processor version of its Unix-based Powerparallel SP2 system to the Cornell Theory Center in Ithaca, N.Y., which will make it available for academic and business research. The machine is the largest SP2 system to be shipped thus far and will be able to do 136 billion calculations per second, according to IBM. The Cornell facility is the first customer to get a Powerparallel system since the original SP1 was introduced early last year. The parallel processors are based on IBM's Power RISC chips.

Unisys opens help center

Unisys Corp. has opened a desktop help center in Austin, Texas, that provides nationwide services.

Trade system developed

Smith Barney, Inc. has acquired Infinity Financial Technology, Inc.'s Montage software to develop its global fixed income derivatives trading systems.

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[redacted]

IntelligenceWare, Inc. has announced IDIS: The Information Discovery System 2.5, pattern discovery software.

According to the Los Angeles company, IDIS 2.5 analyzes databases, automatically generates hypotheses, discovers patterns and displays output in a hypermedia environment.

Features in Version 2.5 include server-based discovery, automatic parameter adjustment, rule visualization and performance enhancements.

Prices start at $1,900.

▶ *IntelligenceWare*
(310) 216-6177

XL/Datacomp, Inc. has announced InMotion, IBM AS/400 software that controls the company's near-line robotic automated tape libraries.

According to the Lisle, Ill., company, InMotion lets users of XL/Datacomp's InTerlude Data Management Software or third-party tape management software store and retrieve data from near-line tape libraries.

InMotion is available in four tape formats: 8mm cartridge, quarter-inch cartridge, half-inch cartridge and reel-to-reel.

Prices for InMotion with an automated cartridge system and a library control unit start at $40,000.

▶ *XL/Datacomp*
(708) 434-1200

Avalon Software, Inc. has announced Avalon CIIM 9.0 for Sybase, an integrated family of client/server software for manufacturing, distribution and financial applications.

According to the Tucson, Ariz., company, Avalon CIIM 9.0 for Sybase offers shop floor control, capacity resource planning and demand-driven procurement.

The product supports Oracle Corp. and Sybase, Inc. relational database management systems.

Prices range from $75,000 to $750,000.

▶ *Avalon Software*
(602) 790-4214

Pilot Software, Inc. has announced the Lightship Sales and Marketing Intelligence System (SMIS).

According to the Cambridge, Mass., company, Lightship SMIS is based on on-line analytical processing technology.

The system provides reporting capabilities and includes a sample demonstration database so users can test the system immediately. Modules include Ranking, 80/20 Analysis and Ad/Hoc Analysis.

Lightship SMIS costs $95,000 for a 25-user system.

▶ *Pilot Software*
(617) 374-9400

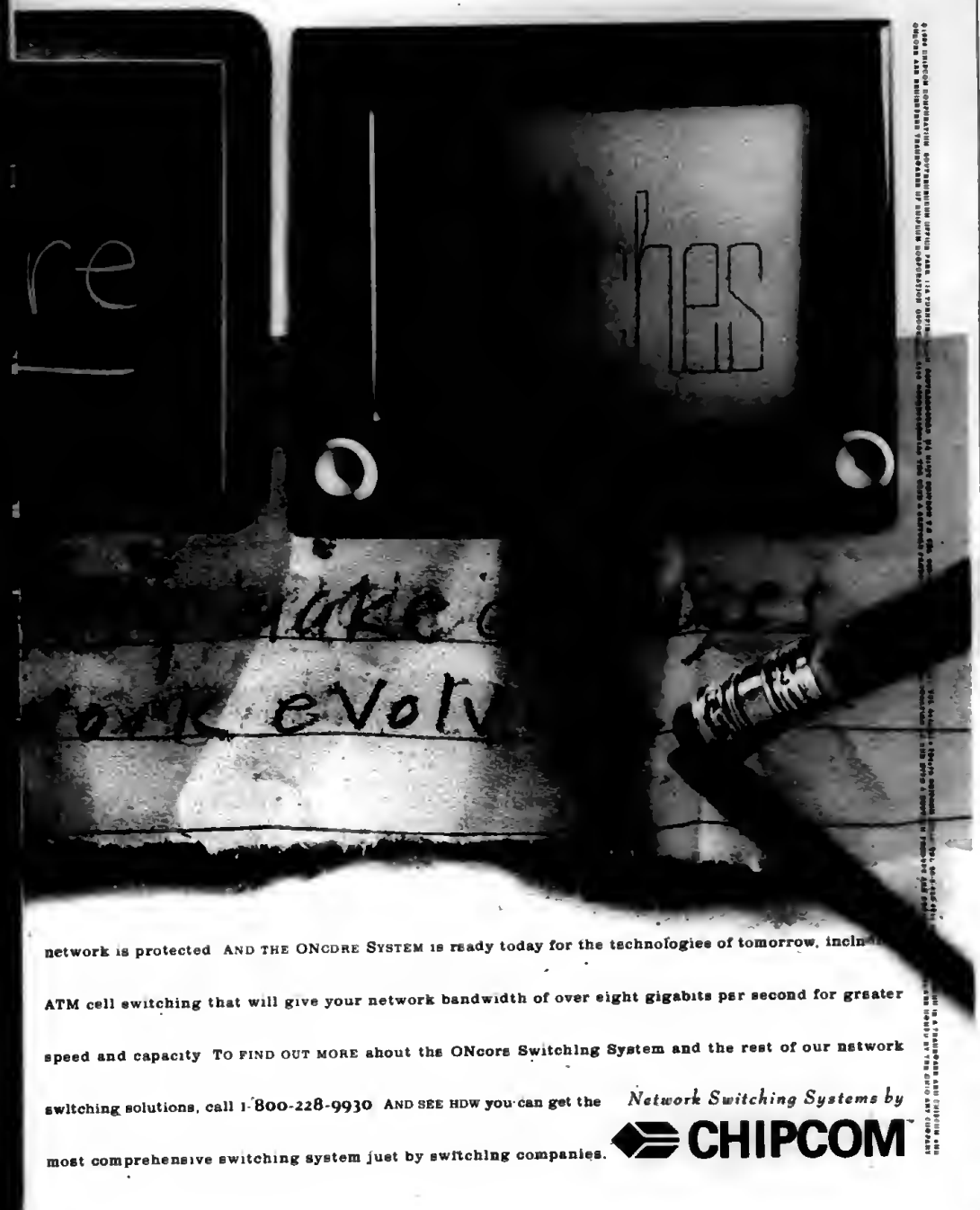
Global Software, Inc. has announced Giles 1.1.1.

According to the Duxbury, Mass., company, Giles 1.1.1 provides a directory of existing MVS system components, and it automatically mirrors the existing environment without the need for manual input.

The product stores vital information, lets users assess the impact of a proposed change and extracts information from job control language, Cobol source code, CICS tables and copy libraries.

Giles 1.1.1 runs on any MVS system that uses IBM's ISPF 2.0 and above. It costs $35,000 for a site license.

▶ *Global Software*
(617) 934-0949



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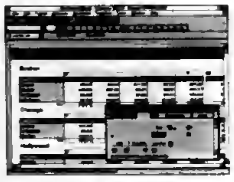

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By Colin White and Paul Winsberg

With worldwide competition heating up as never before, businesses must find ways to meet customer needs faster, less expensively and better than competitors. Information technology plays a major role in meeting this challenge by providing the flexibility to cope with, and even exploit, the accelerating pace of change in the business climate.

Information technology is also changing at a fierce pace, and the challenge facing IT departments is determining which technologies and products provide real solutions that help their businesses gain strategic advantage. The DB/EXPO RealWare Awards program is designed to help organizations in this decision making process by highlighting real customer applications that provide real business benefits.

DB/EXPO is the industry's largest database and information technology exposition and conference. It runs in May and December each year in San Francisco and New York, respectively. Prior to each DB/EXPO event, Blenheim NDN, the organizer of DB/EXPO, invites vendors to propose customer applications that demonstrate how IT can benefit business users. The applications proposed must be in production. Each vendor is allowed to propose applications for one of the following categories:

- Enterprise Client/Server
- Database in the Office
- Rapid Application Development using Object-Oriented Technology
- Interoperability
- Enabling New Business Opportunities using Data Warehousing.

A panel of independent judges reviews each proposal to determine the best application in each category. The category winners are then presented with awards at DB/EXPO. This paper highlights the applications that were the winners and runners-up at the May 1994 DB/EXPO in San Francisco. All finalists at each event are given the opportunity to present their application solutions at the following DB/EXPO conference, and so attendees at DB/EXPO in New York during the first week of December will get an opportunity to hear in detail about the applications presented in this paper.

ABOUT THE AUTHORS

Colin White is president of DataBase Associates International, and editor of *InfoDB*, a technical journal specializing in information technology. He is also well-known as the conference director for DB/EXPO. He specializes in client/server computing and data warehousing, and lectures and consults throughout the world. He has written numerous papers and articles, and has co-authored books on IBM's DB2 and SQL/DS products.

Paul Winsberg is a principal of DataBase Associates, associate editor of *InfoDB*, and contributing editor to *Database Programming and Design*. Mr. Winsberg specializes in tools and techniques for designing distributed applications and databases. He has published and lectured extensively in North America, Europe and Australia, and conducts popular seminars on database and application design.

Enterprise Client/Server

Mt. Clemens General Hospital (NeXT Computer)
J.R. Simplot (Sybase)
Napco International (Magic Software)

Database in the Office

World Cup USA 1994 (Sybase)
Moore Advanced Services (Uniface)

Rapid Application Development using Object-Oriented Technology

Chrysler Financial Corporation (NeXT Computer)
Quest International (NeXT Computer)

Interoperability

Healthcare Data Exchange (Covia Technologies)
Avis Rent-a-Car System (Sybase)
TNE/Information Services (MDI)

Enabling New Business Opportunities using Data Warehousing

Hughes Aircraft Company (Prism Solutions)
Millipore (Business Objects)

*WINNERS INDICATED IN RED.

Enterprise Client/Server

Mount Clemens General Hospital

Mount Clemens General is a 288-bed hospital providing acute care services to its Michigan community. The hospital depends on its "Core Clinical" computer system, which manages all major aspects of patient care, including:

- admitting, discharge and transfer of patients
- entering all orders for patient services and pharmaceuticals
- tracking the results of medical tests
- monitoring patient care.

Until 1993, these functions were supported by a centralized system on an aging mainframe, which limited hospital operations in several ways. It featured a cumbersome user interface based on character terminals and function keys. Routine patient care planning required as many as 19 screens and 200 responses. The system had excessive down time. Reports were packaged and run in batch, so users couldn't submit ad hoc queries. One of the most important functions — patient admitting, discharge and transfer — was done manually.

Mount Clemens decided to replace this system with client/server and object-oriented technology. Workstations in the new system are based on Intel and Motorola processors running NEXTSTEP. The server is based on a Sun SPARCStation Model 30 and Sybase. The hospital runs two identical servers in parallel in case one fails.

Vital Chowdry, the architect of the system, says the hospital selected NEXTSTEP because, "core applications have a life of 12 to 15 years, so we wanted an architecture for the year 2000 and beyond."

In order to improve response time and decrease the load on the network, about two-thirds of the 150 tables in the server database were copied to the client. The developers built a special object, called a table manager, that monitors these duplicate tables and updates clients when necessary. This strategy was successful because the replicated tables experience frequent reads and infrequent writes.

Mount Clemens estimates that it saves 15,000 hours annually with the new system. The number of users has increased from 300 to 1,100. Up-time has increased to 99.8% over the first six months, including scheduled maintenance. Hardware costs are dramatically lower than similar mainframe solutions. In all, Mount Clemens saves $1 million annually.

In addition, hospital staff members now have a more appealing user interface and flexible reporting mechanism, so it's easier to get information in and out of the system. Better access to information means the hospital can reduce the average patient stay without compromising quality of care.

Because the system is flexible and modular, it easily supports medical advances like EKG strips and medical imaging. The technology is open and standard, making it easy to expand as transaction rates increase, and easy to connect to other systems like billing, accounting and laboratory information.

Enterprise Client/Server
RUNNER-UP

J. R. Simplot

Sponsored by Sybase

J. R. Simplot is a privately held company with $2 billion in revenue gained from a variety of manufacturing activities. Until 1992, Simplot managed inventory at its five main warehouses the old-fashioned way, with colored magnets on wall maps and processed orders on paper. This wasn't good enough — only 78% of orders were shipped exactly as requested by customers.

Simplot turned to Sybase, selecting the SQL Server database and working with Sybase consultants to build a system for order entry, inventory management and distribution. Sybase used the APT Workbench development tools and installed the system on 5200-class servers from Digital running Ultrix. The system is based on a client/server architecture so that inventory data can be shared across many workstations. Handheld scanners and barcode readers help capture inventory data on the warehouse floor. Shortly after the system was installed in 1992, the database reached 300 MB. It is growing rapidly as Simplot builds applications and extends the reach to the entire enterprise.

Simplot says the new inventory system has completely changed its business practices and improved its competitive position by realizing three specific benefits:

- now, 97%, not 78%, of all orders are shipped exactly as placed
- Simplot has eliminated a number of positions in order entry and distribution, including nine of 138 positions at its Caldwell warehouse
- inventory at Caldwell turns over 14 times each year, compared with 12 prior to the new system.

Simplot's successful system is mission-critical and high profile. Ray Sasso, Simplot CIO, explains: "I was convinced that we should find a real business problem for the first client/server application, not just a telephone directory application. This way, success means something."

Enterprise Client/Server
RUNNER-UP

Napco International

Sponsored by Magic Software

Napco International is a $35 million trading company that supplies parts and upgrade services for tanks, aircraft, patrol boats and other military vehicles in 60 countries. Napco faces an irregular demand for a wide range of parts and supplies. CEO Gary Rappaport says, "Nobody is wise enough to know what to stock in this business. It's often a massive scavenger hunt to find a supplier with stock on hand, or someone who can manufacture it quickly and at the right price." Therefore, the company with the best database has the strongest strategic advantage.

Napco's business operations were based on a slow, inflexible IBM 4361 that was installed in 1981 and could no longer support Napco's sales processes. In 1990, Napco replaced the 4361 with a client/server system of 100 Intel 386 and 486 workstations, Novell's NetWare operating system and a Btrieve database on the server.

Napco built on the new system with a rapid application development tool called Magic. The result is a comprehensive and integrated system for order entry, purchasing and sales. A sales agent can now access a U.S. Government supply database from CD-ROM, read in purchase requests from floppy disk and develop and fax proposals, all within the Magic environment.

The new system has three major business benefits. First and most important, it offers sales agents flexible access to data, so they can respond to customer requests better and faster. Second, it is easy to enhance and modify using the tools from Magic Software. Finally, it is much cheaper than the old system. With total development costs of $900,000 (including a false start with Gupta Software), and annual savings of $350,000, the system paid for itself in three years.

Database in the Office

SYBASE®

World Cup USA 1994

With a cumulative television audience estimated at 32 billion people for the 52 games, World Cup '94 was one of the world's largest-ever sporting events. The need to distribute timely information for TV broadcasting and media reporting was unprecedented.

The World Cup News Service gave the 10,000 journalists covering the event multimedia kiosks showing up-to-the-minute information on game results, historical soccer data, player biographies, photographs and video clips. A separate application controlled the badging and registration of teams, broadcasters, journalists and sponsors — in total, some 50,000 people. A third application handled logistics such as accommodation and transportation for staff and members of the 24 participating teams.

The World Cup '94 system involved a consortium of vendors including Sun, Sprint and Sybase. EDS was the systems integrator.

Some 1,200 Sun workstations were installed at the nine venue sites. FIFA headquarters in Zurich was connected to a SPARCenter 2000 Server in Dallas via fiber-optic links. These workstations were also connected to local Sun servers for word processing, E-mail, calendar management and other tasks. Certain venues were wired with ATM links for video transmission. Two other servers were used as hot standby machines.

All applications were built using Sybase Gain Momentum, an object-oriented multimedia development tool. Database processing was done by Sybase SQL Server. Video clips were kept on separate servers connected to the ATM network, but were indexed from the main

Sybase server. The Sybase Replication Server was used to feed database changes to the hot standby machines.

Bill Alaoglu, assistant vice president of technology for World Cup, comments, "There was a short time period to develop and deploy the applications. We had less than one year to build the system, and production cutover involved installing the applications in nine venue cities over a time frame of less than three weeks."

Database in the Office
RUNNER-UP

Moore

Sponsored by Uniface

Moore is a leading supplier of software for managing electronic business forms. Like many software vendors, it has a critical business requirement for cross-platform development.

One of its most important products is DocuMASter, a modular system for distributing, accessing, viewing, routing and printing forms throughout the enterprise. DocuMASter has three functions on the server: system management, form distribution and ordering of printed forms from suppliers.

Version 1.0 of DocuMASter was written in COBOL and released in 1991. To improve portability of the software, it was rebuilt in UNIFACE and introduced as version 2.0 in December 1993. The system can manage as many as 60,000 forms, with an internal form base measuring in the gigabytes if forms are stored as images.

At its peak, there were 12 engineers on the development team. The primary development platform for version 2.0 is Windows, Sybase and NetWare. The application code occupies 15 MB. The application logic and user interfaces were developed in the UNIFACE environment, except for several critical file management functions which were written in C.

The UNIFACE solution offers several business benefits to Moore. Most important, Moore can sell to customers running any database or GUI supported by UNIFACE. Furthermore, development in UNIFACE is easier even for a single environment, because UNIFACE handles many low-level functions like data access, network integration and screen generation. Finally, the UNIFACE data modeling features reduce the cost of building and maintaining the system.

Rapid Application Development using Object-Oriented Technology

Chrysler Financial Corporation

Chrysler Financial Corporation (CFC), a subsidiary of Chrysler, provides financial services to 5,000 automobile dealers throughout North America. Like many other financial organizations, CFC faces an increasingly competitive business environment. It must adapt to rapidly changing federal and state regulations, respond to innovative products and services from the competition, and make fast decisions on loans and credit.

CFC found an answer to this problem in object-oriented technology. The goal was to build financial applications — out of a reusable set of objects — that could be quickly adapted and reassembled in response to changing business requirements.

Specifically, the solution was built with the NEXTSTEP product suite, including NEXTSTEP User utilities like E-mail, print and fax, and NEXTSTEP developer utilities like database, screen painting, editors, debuggers and compilers. CFC also used selected development tools like DevMan for version control and AccessKit for data modeling, both of which are from VNP Software. The development tools and production software run on Unix and Intel 486 processors in a client/server configuration.

Why did CFC choose NEXTSTEP? Mike Adelson, MIS Manager at CFC, says, "NEXTSTEP was the only product that satisfied our four basic requirements: an excellent user interface, a robust development environment, remote administration functions and support for Sybase."

Using these tools, CFC built a suite of 24 integrated applications covering such areas as loans, leases, accounting changes and payments.

These are not minor league applications. Each application uses 19 classes on average. The suite is deployed at 54 branch offices with roughly 70 MB of data each, and supports more than 1,200 users. Deployment began in June 1993 and was completed in September 1994.

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3. Computer Reseller/Distributor
4. Transportation/Travel
5. Educational Institutions
6. Utilities
7. Trade/Wholesale/Retail
8. Construction/Mining/Agriculture
9. Other _____
10. Legal Services
11. Insurance
12. Banking
13. Government
14. Accounting
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The most significant benefit of the NEXTSTEP environment is the level of reuse. On average, 13 of the 19 classes in each application are shared. In other words, applications are "half complete" before the programmer sits down at the keyboard. This translates to lower development costs and, more significant for CFC, dramatically reduced lead times. CFC built the first five applications in four months. By reusing classes from these applications, the remaining 19 were built in the same amount of time.

Because the project was so successful, CFC created a new organization called the Data Object and Technology Team to create new classes and promote reuse.

Rapid Application Development using Object-Oriented Technology
RUNNER-UP

Quest International

Sponsored by NeXT Computer

Quest International is an exotic business — it creates fragrances for internationally known brands like Yves St. Laurent and Thierry Mugler. In 1993, Quest set out to build software for fragrance design, using NEXTSTEP and its object-oriented development tools. It called the resulting application MIRIAD for "Multimedia Initiative Redefining Intelligent Aromatic Design." (Quest is based in Paris, and this name is translated from French.)

MIRIAD makes it easy for "fragrance engineers" to try out new formulas and themes. Each component of a fragrance, such as raw materials and scent, is represented by an icon and implemented in an object. Designers create new fragrances by selecting icons, setting values and viewing the results graphically.

The system uses object-oriented and client/server technology. It has Motorola and Intel clients and an IBM RS/6000 server running Oracle version 7. Quest recently installed several workstations and an RS/6000 server in its New York office, with remote access to the Paris server for enterprise data. The application is relatively small — some 10,000 lines of code, and approximately 100,000 database records supporting a low transaction rate.

Development of MIRIAD took about seven person months in NEXTSTEP; Quest estimated the same project in Windows would require 30 person months. The system is easy to use and easy to modify as new types of fragrances become available. Most important, MIRIAD gives Quest an advantage over competitors, which do not have any automated support for fragrance design.

Interoperability

Helping You Adapt to Business and Technology Change.

Healthcare Data Exchange

Healthcare Data Exchange (HDX), a subsidiary of Shared Medical Systems, provides electronic data interchange for healthcare organizations. These services allow healthcare providers and payers to access and exchange healthcare information across a diverse range of computer platforms and networks.

At the heart of the information services is a distributed computing and database system that routes requests for information from healthcare providers to employers, insurance companies and regulatory agencies. The system can be used by a hospital, for example, to determine a patient's healthcare benefits data. It can also be used to submit a claim to the insurance company or to receive payment information. Data can further be retrieved from a 5 GB IBM DB2/MVS data warehouse containing insurance index and demographic data.

The biggest challenge in developing the distributed system was the broad range of hardware and software being used. HDX needed to support interoperability across LU6.2, TCP/IP and X.25 networks, and between applications running under IBM MVS and OS/2, and Stratus VOS operating systems. It also wanted to insure that new clients with other operating environments could be easily integrated into the system.

To solve the heterogeneous interoperability problem, HDX employed Covia Technologies' Communications Integrator (CI), which allows applications to communicate with each other across a network via a synchronous messaging system. Environments supported by Covia Technologies include MVS (CICS and IMS), OS/400, OS/2, Stratus VOS, Tandem Guardian, various Unix systems and Windows NT.

The HDX system was first installed for internal use toward the end of 1993, and since then, several client sites have been integrated into the service. The company

is now seeing processing rates of 5,000 transactions per day on OS/2, 50,000 per day on VOS and 10,000 per day on MVS. Another implementation in the New York area involving 17 hospitals is processing more than 25,000 transactions per day.

Don Bechtel, HDX manager of development, comments, "We needed a system that enabled us to integrate existing mainframe computers with the new world of client/server computing. The messaging middleware approach used by Covia's Communications Integrator enabled us to do that." HDX estimates that the use of protocol-independent messaging software saved it more than 50% in the development resources required to write the network component of the application.

Interoperability
RUNNER-UP

Avis Rent-a-Car System

Sponsored by Sybase

Avis Rent-a-Car System, Inc. is one of the largest employee-owned companies in the travel industry. Worldwide, Avis rental activities are conducted by 21,000 employees at 4,800 locations in 139 countries. The company has a fleet of more than 400,000 vehicles.

To maintain its competitive edge in the car rental industry, Avis decided that a move to client/server computing across the enterprise was critical. A key element of the move was a new rental car reservation system. In building the new reservation system it was essential that reservation agents be able to access not only the data managed by the new client/server application, but also existing reservation data stored in DB2 and IMS databases on an IBM mainframe.

The solution was to use Sybase SQL Server running on a series of Sun SPARCServer 512 servers and GUI-driven Macintosh workstations for the new client/server application. Access to existing DB2 and IMS data on the IBM mainframe was done using the Sybase Open Server along with Avis-developed communications software. This architecture allowed agents to complete reservations without having to know where the information was located — on SQL Server, DB2 or IMS.

"The implementation of a new client/server reservation system provided major benefits for Avis," says Charles Bell, who is in charge of the system at the Avis Worldwide Reservation Center located in Tulsa, Oklahoma. "New hire training time has been reduced by 50%, the time needed to process a reservation by five seconds and the number of keystrokes generated in a call by 39%." These are significant savings given that Avis processes more than 25 million customer calls and trains 250 new reservation agents annually. The new reservation system also reduces the mainframe resources required for the application's network component.

Interoperability
RUNNER-UP

TNE/Information Services

Sponsored by MDI

The New England (TNE) was the first chartered mutual life insurance company in the U.S. TNE collects, analyzes and stores billions of pieces of information. To improve end-user access to this information, TNE installed a new Microsoft SQL Server query and reporting system that is synchronized with its mortgage, securities and real estate IMS databases. The new query and reporting system, which uses tools such as Microsoft Access, replaced an excessively expensive mainframe and PC-based Focus reporting system. Although the new SQL Server database is for query and reporting, the ultimate objective is to replace the complete IMS OLTP system with a client/server solution.

One of the biggest challenges in developing the new system was keeping the SQL Server database current, since the source IMS databases are constantly being modified by the company's main OLTP applications. The solution uses an IMS data capture exit to trap the IMS changes as they occur and write them to a DB2 database. A user-written application is then run daily to read the changes from the DB2 database, convert them to SQL update statements and execute the generated statements against the SQL Server database.

The application runs on the mainframe and accesses the SQL Server databases using the services of the Micro Decisionware Database Gateway which allows the mainframe application to act as a client to Microsoft SQL Server. Howard Lipsky, second vice president at TNE, comments, "One issue for us is the large amount of IMS data that has to be handled. The daily update of the SQL Server system involves processing about 20,000 IMS segment updates. The MDI gateway provides several options to help us fine tune this processing."

Enabling New Business Opportunities using Data Warehousing

Hughes Aircraft

PRISM

Hughes Aircraft has seen dramatic changes in the defense industry over recent years. Hughes knew it must respond quickly to competitive challenges in both defense and commercial environments. This meant decision makers needed better information access. For example, the director of materials needed to find information about parts acquisition in 10 minutes, not 10 days.

"Our mission was to insure that Hughes business information was integrated, shared, secure and easily accessible," says Bob Cunco, manager, enterprise data management. Several strategies were considered, including data warehousing. Says Cunco, "A data warehouse was chosen as the enabling technology because it offered faster access to information at a reduced cost."

The initial data warehouse effort was funded as part of an IT infrastructure project so that a pilot warehouse could be quickly built and evaluated. The warehouse contains information about suppliers and purchased commodities for three of the Hughes business units. The objective of the warehouse was to better manage purchased parts and material requirements, and to provide information that allowed the company to negotiate supplier discounts.

Building the warehouse required the acquisition of data from 17 different DB2 and IMS databases and sequential files. Identifying and integrating this source data for loading into the warehouse was done using the Prism Solutions Warehouse Manager, which provides facilities for copying data from operational relational data sources to a variety of different relational database systems.

At Hughes, the product was used to do source data cleanup and transformation, including record selection, data type conversion, data filtering and summarization, and data value conversion for some 200 warehouse data elements. The result was a data warehouse that contained five million rows spread over 18 relational tables. This database was managed by Red Brick Warehouse, an RDBMS optimized for decision support processing.

Says Cunco, "The warehouse has reduced the time it takes to find information about the acquisition, storage and location of material from days to minutes. In the first year of production, it will serve the information needs of 400 key users and provide a $2 million savings in the cost of generating ad hoc reports."

Enabling New Business Opportunities using Data Warehousing
RUNNER-UP

Millipore

Sponsored by Business Objects

Millipore manufactures filters and other chemical analysis tools for use in the chemical, pharmaceutical and manufacturing industries. Key to the success of Millipore is the availability of timely information to help it identify new markets, serve customers and stay competitive. Until recently, Millipore struggled with giving end users easy access to this data. End users were spending so much time searching for the data they needed they had little time left for data analysis. Also, time consuming rekeying of data was often necessary for generating reports.

The solution was a data warehouse. The system uses Sequent Unix servers running Oracle Financials, and clients running Microsoft Windows. Data is downloaded nightly onto the server from Oracle order entry applications. The challenge was finding the right end-user tools for accessing the warehouse data. "We found most tools required users to have some level of understanding of the underlying database structure or they required MIS to spend a lot of time maintaining the application," says Bridgit Reiss, a software engineer at Millipore.

Business Objects was chosen as the end-user access tool. The product hides the complexity of the database structure from the end user by utilizing a front-end semantic layer. Using Business Objects, the MIS staff has defined 10 universes, or predefined data categories, that hold over 500 business terms that form the basis for ad hoc queries by end users. The largest universe is for sales and marketing data. There is also a universe for manufacturing information, financials, general ledger and accounts payable. To date some 250 users utilize the system with plans to expand across the organization.

Client servers, giant servers and mainframes alike will all accommodate a data warehouse, given the right software. That's where Bill Inmon comes in.

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Bill Inmon, creator of the data warehouse.

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Firm gets mixed results in re-engineering project

By Julia King

Contrary to popular wisdom, Olympus America, Inc. skipped re-engineering's initial step of renovating business processes before implementing new information technology. Instead, it dove directly into installing $5 million worth of packaged software from System Software Associates, Inc. (SSA) to replace 18-year-old proprietary applications at three sites.

At the same time, the camera company combined what used to be three separate information systems organizations into one 32-person corporate IS department and upgraded an in-place IBM AS/400.

The results have been mixed. While IS has learned some lessons the hard way — particularly about customizing off-the-shelf software — it has converted roughly 40% of its legacy applications to SSA packages. Systems running under SSA's BPCS/AS software suite include general ledger, financial reporting, order management and inventory.

Had Olympus taken a more conventional approach to re-engineering, "we'd still be talking about how to re-engineer and wouldn't have taken any steps toward new information systems," said Ethel Huff, chief financial officer at the Lake Success, N.Y., company.

One of the main reasons for its decision was the company's highly autonomous corporate culture. Getting executives and workers in three very distinct operating groups — scientific products, consumer products and manufacturing/research — to work as a single corporate entity would have been difficult, time-consuming, expensive and conceivably impossible.

For IS, which had to re-engineer itself in the process of purchasing and installing the new software, the process was far from easy.

"We were sort of picked as the guinea pigs to see how re-engineering would go and how successful it might be," said Reg Maton, Olympus' chief information officer. "It was a difficult and traumatic change."

Olympus CIO *Reg Maton said his department was picked as a guinea pig for re-engineering*

Reorganization process

First, IS staffers were divested of their group-focused responsibilities and organized into functional teams covering applications delivery; manufacturing systems; the data center; an information center, which develops and implements IS standards; and communications.

After reorganizing, Maton said one of the company's biggest challenges was moving from a traditional systems development methodology to embracing computer-aided software engineering tools. For example, virtually all IS staffers had to be trained in how to use SSA's Asset tool.

A major ongoing challenge is to implement the SSA software in such a way as to take full advantage of the standardization benefits the package offers but also remain flexible enough to accommodate the divisions' different business processes.

Maton said IS learned that lesson the hard way after making substantial changes to BPCS code while implementing the order management module. "We made a lot of changes and enhancements, and we ran into performance problems as a result," he said.

So now, rather than change BPCS code to accommodate evolving business processes, IS works around it by creating subsystems written in RPG to operate outside of the BPCS system.

Maton said if he had it to do all over again, he would go through the classical re-engineering process one step at a time before he imported new technology.

"It would have made it a helluva lot easier in terms of modifications and enhancements. We would have had much less modification if we had re-engineered the order management process first," he said.

Cost savings

For now, it is difficult to quantify how much Olympus is saving under the new system, Maton said.

"Right now, we're making an investment in new systems and new technology," he said. "The savings will come when we do the [business process] re-engineering at the back end."

Mary Boone, vice president of NDMA, Inc., an IS consulting firm in Ridgefield, Conn., said she would never recommend putting in a new system before re-engineering business processes. But Boone said she has seen cases where companies have "serendipitously come upon the right information system without a lot of needs analysis up front."

What Olympus has done is create an infrastructure where there is a need for a common system, Boone said. "That's installation, not implementation," she said.

San Francisco Symphony gets new face for classical system

By Mark Halper

The San Francisco Symphony is full of face-lifts these days.

Two years after completing the renovation of Davies Hall, where the orchestra plays, the symphony is making some major changes to the look and feel of its computer operations.

The classical music group is sticking with its classic computing system — Hewlett-Packard Co.'s HP 3000. But it is adding front-end software that will put a Windows interface on character-based programs that run on about 100 PCs tied to the HP 3000.

The addition of HP's NewFace software — costing about $20,000 — marks the first step in a project intended to jazz up the HP 3000 into more of a distributed computing server for desktop users, said Dave Murdoch, the symphony's director of information systems.

A second phase, if the symphony goes ahead with it, would entail replacing the HP 3000's older Turbo Image database with a more relational program such as Image/SQL or a third-party database, Murdoch said.

No to Unix

However, Unix is one item that will not be on Murdoch's agenda during the modernization effort. Murdoch said he remains committed to the HP 3000 and its MPE/IX operating system to support myriad operations including financial, sales, box office and fund-raising because of the system's tried-and-true reliability.

"In my 12 years here, the 3000 hasn't gone down once," Murdoch said. By comparison, Unix does not have the proven uptime track record, he noted.

Murdoch is purchasing the NewFace software from M. B. Foster Associates Ltd. in Toronto, which HP and NewFace developer Denkart NV in Willebroek, Belgium, have tapped as the product's North American outlet.

For symphony controller Deena Goder, the Windows front end will give her the ability to fashion financial reports according to who is receiving them. "It gives us flexibility in terms of reporting, and that's become imperative in the '90s," Goder said. "The need for presenting and interpreting information in different ways is greater than ever."

Under the current character-based approach, tailoring reports for different audiences is a more tedious task, she noted.

Ticket services director Janice Glenn said she is also looking forward to the NewFace interface. "We're constantly repackaging our ticket specials to meet marketing demands," Glenn said. The ticket sales staff currently spends a lot of time thumbing through paper documents to provide updated information on ticket discounts and promotional prices. NewFace will help avoid this, she said.

San Francisco Symphony *IS director, Dave Murdoch, is a jazz performer in his spare time*

In selecting NewFace, Murdoch said he also evaluated a similar product called NuView from Advanced Systems, Inc. in New York. He chose NewFace because it was available sooner than NuView. The symphony plans to begin installing NewFace this week. The software will reside on an 486-based HP Vectra network server running Novell, Inc.'s NetWare.

On the client end, the software will require Intel Corp. 486-based desktops. That will mean replacing some 75 desktops that are now either 286, 386 or dumb terminals. But that process will not prove costly — HP is donating the 486 boxes as part of a $250,000 equipment grant to be phased in over two years, an HP spokesman said. However, the symphony is paying for the front-end software itself.

Users at other HP 3000 shops said they also are interested in adding a Windows look to their applications to improve operations and preserve their investment in legacy hardware.

Robert Bell, IS manager at the Boston Symphony Orchestra, Inc., said he plans to look into such a move soon. The Boston Symphony has about 100 PC users who run Windows PC applications, but they use character-based HP 3000 programs with terminal emulation software from Walker Richer and Quinn, Inc. in Seattle.

"If we could get that flexibility on the 3000, I think users would feel more comfortable," Bell said.

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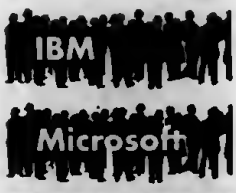

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3 Multiprotocol Routing	Yes	No	No
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5 Security	Yes	Limited	Limited
6 File	Yes	Yes	Yes
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Application Development

OBJECT MARKET GETS FACE-LIFT, 100
NEW PRODUCTS, 101

Distributed client/server development

Partitioning a key client/server technique

Users say development tool has benefits, drawbacks

By Rosemary Cafasso

Application partitioning is emerging as a key technique for distributed client/server development, and users said it can provide plenty of benefits — as long as it is used with care.

Put simply, partitioning calls for building an application and then splitting it into modules that can run on different systems on a network. In the future, partitioning techniques are expected to allow users to load-balance application modules in real time to get better performance or to sidestep system crashes.

> At least one user said an effective way to keep partitioning under control is to keep it simple

For today, partitioning techniques can make a difference. Benefits include more distributed applications and better performance because modules will presumably be deployed on the most suitable system resource. The big drawback comes when users partition without paying close attention to the network. The result can be network traffic jams and poorly performing applications.

Several corporate developers recently stressed the need to make module location a top priority when designing applications. David Gusman, director of information technology architecture at Federated Systems Group, a Norcross, Ga.-based division of Federated Department Stores, Inc., said module location was a key issue when he selected a tool set earlier this year.

"A lot of tools out there will allow you to develop partitioned applications," Gusman said. "What made us choose Seer Technologies was the implementation and management [functions]. It's figuring out what part of my app I will deploy where."

What users want

Even the tools vendors that promote automatic or default partitioning, such as Forte Software, Inc., say it is important to pay attention to application usage patterns and potential network traffic. These tools vendors also offer the option to "repartition" should the initial deployment be ineffective.

But users seem even more interested in built-in management functions that help developers map out a partitioned application before it is actually deployed. This allows users to see the impact the partitioning would have on the system.

Tool time

Application partitioning lets users split applications into modules and run those modules on the most appropriate platforms. Companies offering this technique include Forte, TI, Dynasty Technology, Inc., Seer Technologies, Inc. and Interactive Development Environments.

Laura McSweeney, an information systems director at Travelers Insurance Co. in New York, said a key aspect of Texas Instruments, Inc.'s Composer development platform is the up-front analysis it provides of "the performance impact on the network" before actual coding of an application takes place.

Seer's benefits

Gusman said the Seer development platform provides some assistance for partitioning. A network diagrammer, he said, keeps a profile of available resources. But "the analysis itself is something we have to do," he added. "You have to put that together in terms of systems resources and bandwidth. You have to compare that to business needs, and then you can decide how you will partition it. I think location analysis is crucially important."

And at least one user said an effective way to keep partitioning under control is to keep it simple.

"We have set it up as exactly three tiers" on which the applications modules reside, said Tery McLane, head of technology at Chicago-based Mercer Technologies, the information services group of William M. Mercer, Inc. "Not five, not 10. It is just very simple to us."

Publishing products help users explore the 'net

Interleaf taps HTML technology to boost access

By Ellis Booker

Fueled by commercial users' tremendously fast adoption of the Internet, a once an arcane subject — hyperlinked documentation — has stepped into the spotlight.

Specifically, users are trying to get their arms around HyperText Markup Language (HTML), the behind-the-scenes "stitching" that makes point-and-click cruising through World-Wide Web servers on the Internet possible.

Web servers are by far the fastest growing part of the Internet — moving from 500 sites a year ago to 5,000 today, with 50,000 sites expected by the end of next year. The appeal of the Web is its ability to present multimedia content — text, graphics, images and even audio and video — in a hypertext environment.

New contender

Earlier this month, Interleaf, Inc., a major document management player, joined the fray with its announcement of Cyberleaf, a desktop tool for building and managing Web pages.

Cyberleaf's features include the following:

- A graphical user interface that does not require knowledge of HTML syntax.
- Multiple format conversions from popular word processing packages, including Word and WordPerfect.
- Persistent hyperlinking, or the ability to retain hyperlinks when documents are incrementally updated.

The Unix version of Cyberleaf will be available next month for $795. A Windows version, supporting both Windows and Windows NT, will be ready in the first quarter of 1995 for $495.

A beta user of Cyberleaf said he was pleased with the product and its ability to reduce the time it takes to build Web pages. "There's no other product like it. We're going to recommend it highly to our customers," said Jay Weber, director of research and development at Enterprise Integration Technologies Corp., an electronic commerce consulting firm in Palo Alto, Calif.

Cyberleaf is aimed at two markets — content publishers, such as corporations, government agencies and academia, and large sites that have begun to

Interleaf, *page 100*

Desktop vendors incorporate browsing features

By William Brandel

In an effort to get a piece of the information superhighway action, the two biggest desktop word processing vendors are incorporating Internet browsing and file conversion facilities into their packages.

Before year's end, Microsoft Corp. will release its Internet Assistant for Word, which will be available from Microsoft's World-Wide Web server for no charge.

Meanwhile, WordPerfect, the Novell, Inc. Applications Group, will deliver Internet access capabilities in WordPerfect for Windows 6.1. The word processing package upgrade will ship next week, but the add-on function for Internet file conversion will not be available until first-quarter 1995, according to Dallas Powell, manager of software development at WordPerfect.

Reed Gilgen, director of learning support services at the University of Wisconsin at Madison, said he sees merit in the Internet/word processing approach.

"We pull documents off the Internet all the time," Gilgen said. "Now it's a Mickey Mouse process."

Indeed, the two products could launch a new trend in word processing: Internet access and document retrieval from within the word processor. The most popular method of accessing the Internet today is via a browser such as Mosaic. However, the incorporation of a browser and a file conversion utility into a word processor could let a user take advantage of features such as editing and spell checkers to manipulate Internet documents.

It's possible

Because Internet documents are formatted to be stored in a HyperText Markup Language (HTML), word processors that use proprietary document formats cannot store files in an HTML format. However, that is about to change. Microsoft's HTML file conversion option will allow Word users to choose HTML as the format for their file.

WordPerfect will include a Standard Generalized Markup Language (SGML) browser that will run with WordPerfect for Windows 6.1. SGML is a flexible format that enables a user to design how he will store objects in the file framework.

Browsing, *page 100*

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Kim S. Nash

Object market gets face-lift

When we last examined the object database market in depth a year ago, some industry observers were predicting a shakeout in the subsequent 12 to 18 months. Too many players and not enough of a market, they said, would force mergers, takeovers or plain old bankruptcies.

So far, not so. Object-oriented database makers are still hanging on, though several look vastly different from the way they did at their inceptions.

Ontos, Inc., for example, is in the midst of a makeover intended to erase perceptions it sells only databases. Burlington, Mass.-based Ontos unveiled several add-on utilities early this month that let object applications based on the Ontos/DB manipulate information stored in relational databases.

While Ontos plans to follow its initial support for Sybase's SQL Server with links to Oracle's product, the company is leaving no stone unturned. Open Database Connectivity and Object Linking and Embedding interfaces are due before June 1995.

IS managers "are telling us that they don't need new technology but need to make what they already have run better," says Gerard Keating, a product manager at Ontos.

Indeed, Ontos is not alone in that realization.

Overall, object database companies are eager to distance themselves from that very moniker. They are busy recasting their marketing tactics with an eye toward emphasizing connectivity to existing popular products — namely, relational databases.

Versant Object Technology, Inc., for example, plans to announce at DB/Expo the week of Dec. 5 a relational data access product called Versant/M. It's based on Austin, Texas-based UniSQL, Inc.'s access recommendations.

Aligning with established relational players is a smart, stay-alive strategy, according to Vince Jordon, vice president of technology at SHL Systemhouse's Object Technology Center in Boulder, Colo.

"Listen, no one is going to throw out Oracle or DB2 or whatever for unproven products from questionable vendors," Jordon noted. He helps large companies build object-oriented applications.

> IS managers "are telling us that they don't need new technology but need to make what they already have run better."
>
> *– Gerard Keating, product manager, Ontos*

Pincer move

Meanwhile, a shadow has fallen over hybrid object-relational databases from UniSQL and Illustra Information Technologies, Inc. in Oakland, Calif. Although these combination products were once regarded as providing the best of both database worlds, now the future may not be as fruitful, said Ian Wesley, an analyst at Ovum Ltd., a market research firm in London.

The reason? Illustra and UniSQL are likely to be pinched hard. As the pure-object players add hooks to relational products, the relational side is becoming gradually (and I emphasize "gradually") more object-aware. IBM, for example, has bought an undisclosed stake in Object Design, Inc., and the two are doing joint development, in part to add object technology to IBM's DB2 family of relational databases.

And makers of object development environments such as Next Computer, with its NextStep, and Taligent, with its Common Point, are themselves hoping to grab onto relational data access as a means of furthering their own goals. Early this month, Next shipped its Enterprise Objects Framework, a software layer that sits atop NextStep to let object applications get at and manipulate information stored in relational databases. The product comes with adapters for both Oracle and Sybase.

Taligent plans similar relational access layers for its environment, when and if it ships next year.

Significantly, Oracle and Sybase have kept mum on specific object plans, leading us to wonder just how far out object-oriented technology will be added to their flagship products. (And no, Larry Ellison, the ability to run multimedia applications on the Oracle Media Server doesn't count.)

So it looks like object database makers that don't want to go under must undergo much change. Perhaps hybrid object-relational vendors Illustra and UniSQL had the right idea from the start, but heaven knows they're in for more competition than ever.

Nash is a senior editor in *Computerworld*'s Burlingame, Calif., bureau.

Interleaf

CONTINUED FROM PAGE 97

use hypertext documents "as a way to distribute information internally," said Philip Wermer, interleaf product manager for internet publishing.

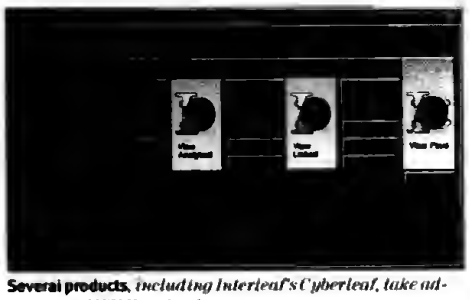
But the market for Web authoring tools already has several products in it, and besides, creating new Web pages is just part of the equation, analysts said.

"Most large organizations don't only have new information to put up" on the internet, said Rick Villars, director of network architecture research at International Data Corp. in Framingham, Mass. Companies still need a way to reorganize their old content and build links from their systems to the Internet, he added.

Even so, Frank Gilbane, an expert on document management standards such as HTML, said interest in internet publishing and HTML will have "a huge effect" on the adoption of standardized ways of marking up documents, notably Standard Generalized Markup Language (SGML). HTML is one application of SGML.

Gilbane, president of Publishing Technology Management, Inc., a consulting firm in Cambridge, Mass., noted that attendance at the annual SGML conference sponsored by the Graphic Communications Association in Alexandria, Va., almost doubled this year, to more than 700 attendees.

Although Villars said he is less convinced HTML will spur SGML adoption, he did concur that HTML has "focused people's attention on the need to preformat information."



Several products, *including Interleaf's Cyberleaf, take advantage of HTML technology*

Browsing

CONTINUED FROM PAGE 97

While HTML is a rigid format that determines how a document can be stored, SGML browsers can read HTML documents.

In addition, Lotus Development Corp. plans to include SGML and HTML features in Ami Pro. Bill Jones, product manager for word processing at Lotus, said this capability would be available sometime next year.

Proprietary system filters

The potential for HTML compatibility in the two most popular word processor packages on the market is interesting. Mastersoft, a file conversion company in Scottsdale, Ariz., will release HTML file conversion filters to a number of proprietary word processing companies, such as Wang Laboratories, Inc.

Should these companies offer HTML tagging capabilities in their proprietary systems, these files will be accessible to users via the Internet browser. This has the potential to greatly increase the number of documents users could access from inside or outside a company.

Future uncertain

However, it is unclear yet whether the idea of including Internet capabilities in a word processor will catch fire.

"I can't see much value in it," said Karl Wong, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif. "I'm sure there is a select audience that is demanding these features, but the majority of people don't even know what HTML is, or care."

Brian Peabody, director of end-user computing at Prime Consulting Group in Norcross, Ga., concurred.

"I see an awful lot of value in mail-enabling a word processor," he said. "But whether it goes out through an Internet gateway or a messaging transport is not a big concern. We just don't have the Internet population here yet."

Briefs

Ontos introduces VIA

Ontos, Inc. has introduced integration services, an object-oriented framework and tool suite that extends the company's object-oriented database. The Ontos Virtual Information Architecture allows applications built with graphical user interface-based tools to share data on the front end and on a back end that will integrate data from a range of sources. New with this release is Object Integration Server for Sybase, Inc.'s database, which provides object-oriented access to Sybase's database.

PVCS Tracker ships

Intersolv, Inc. began shipping PVCS Tracker earlier this month. The software lets developers manage and track code problems and change-request information in LAN-based environments. The basic Tracker product was acquired earlier this year along with Software Edge, Inc.

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SQL Software, Inc. has announced PCMS VCS and PCMS CTS, version control and change management software, and PCMS PCwin, version control software for PCs, all part of SQL's process configuration management system (PCMS) product line.

According to the Vienna, Va., company, PCMS VCS supports parallel and concurrent development efforts, automated heterogeneous builds, release definition and common code.

PCMS CTS, which runs enterprise-wide, uses electronic mail to alert groups to changes and maintains a to-do list for developers. PCMS PCwin lets developers in Windows environments access PCMS with security controls.

Prices for PCMS VCS and PCMS CTS start at $2,500, and prices for PCMS PCwin start at $995.

▶ *SQL Software*
(703) 760-0448

Hewlett-Packard Co. has announced HP Distributed Smalltalk 4.0, a development environment.

According to the Palo Alto, Calif., company, HP Distributed Smalltalk 4.0 provides support for Unix, Windows, Microsoft Corp.'s Windows NT and OS/2.

The product provides classes of objects that communicate over a network using an Object Request Broker and extends ParcPlace Systems, Inc.'s VisualWorks 2.0. The combination provides an environment for developing peer-to-peer distributed object applications.

Prices start at $2,995 on PC platforms and $4,995 on Unix platforms.

▶ *Hewlett-Packard*
(415) 857-1501

Reasoning Systems has announced Software Refinery 4.0, a development environment for building software code analyses and conversion tools for Unix workstations.

According to the Palo Alto, Calif., company, Software Refinery 4.0 lets users analyze, document, enhance and convert mission-critical software systems.

Features include a parser generator that lets tools work with source code in any language, an object base that stores source code representation and provides data sharing on a LAN and unit-level incremental compilation and dynamic linking that speed up the edit-compile-debug loop. Included in Software Refinery 4.0 is Workbench, a library of reusable reverse-engineering components, including charts, flow graphs and coding standards.

Software Refinery 4.0 costs $19,600.

▶ *Reasoning Systems*
(415) 494-6201

Tartan, Inc. has announced Tartan C, a C compiler that produces digital signal processor (DSP) code.

According to the Monroeville, Pa., company, Tartan C includes a compiler, a modular runtime system with a selective linker, runtime math libraries, an assembler and object file utilities. The product supports Spectron Microsystem, Inc.'a SPOX DSP operating system.

Prices start at $1,495.

▶ *Tartan*
(412) 856-3600

Visual Systems Corp. has announced GUI-Kit, a C and C++ cross-platform graphical user interface (GUI) development tool kit.

According to the Ham Lake, Minn., company, GUI-Kit supports Win32, Microsoft Corp.'s Windows NT, OS/2, Unix and the Open Software Foundation's Motif platform.

The product lets users create, modify and test the visual interface of an application without writing a line of C code.

GUI-Kit costs $249.

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Governance *could be the way to manage IS in the new era of decentralized companies, empowered managers and distributed computing. But only if CEOs agree it's the way for IS and the business to achieve...*

A More Perfect Union

By Allan E. Alter

Have you ever set an information systems budget, only to see it blown away by some new corporate initiative you didn't know was in the works? Have you ever been blamed for letting IS expenditures explode when users beyond your control sent PC spending skyrocketing?

Are you irritated by overbearing general managers who double as ignorant info-twits? Are you one of those chief information officers who, as *The Wall Street Journal* reported in a Nov. 10 article on CIOs, "are finding their jobs can be thankless?"

The answer to your frustrations could be found in, of all places, the U.S. Constitution.

Recently, Paul A. Strassmann, in his book *The Politics of Information Management*, and other prominent IS thinkers and ex-CIOs such as Bruce J. Rogow, Richard Koeller and Larry Prusak have begun to popularize a new concept for managing the IS function, information technology and even information: constitutional governance.

Perfect Union, *page 108*

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— Bob Thompson, Supervisor of Database Administration at Towers Perrin, an international management consulting firm.

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CONTINUED FROM PAGE 105

The topic has also popped up recently at IS conferences. Gartner Group, Inc.'s Information Technology Research Program has placed "governance" on its research agenda, calling it a "new set of [information technology] management fundamentals ... for the distributed, client/server world."

This isn't just theory. IS executives at organizations such as Chemical Banking Corp. in New York and Hughes Space and Communications Co. in El Segundo, Calif., are applying governance principles even if they don't call them that (see "Profiles in Governance," page 109). Many of the organizations profiled in *Computerworld*'s recent series on demonstrating the value of information technology have created a de facto governance process for making investment decisions [CW, Aug. 15, Oct. 3 and Oct. 31].

Governance advocates say top corporate and IS management must establish a set of has) rinciples and processes to guide IS decision-making.

A constitutional model

fa particular, Strassmann and Rogow wave the flag for the U.S. Constitntion's federal system of checks and balances as the best model for IS in many companies (see box at right).

Governance is a long way from the old hierarchical, command-and-control style of managing IS or setting standards. And it bears no resemblance to the often chaotic way companies divvy np technology responsibility between users and IS, governance advocates argue. These IS management approaches — if they work — grant decision-making authority to individual managers. But they do not necessarily establish how IS and non-IS managers negotiate differences, provide principles to guide their decisions or mandate that IS expertise is brought to bear on information technology-related decisions.

"If something is important enough to spend $90 million on, the persoo who heads IS should be valued enough to be part of those discussions," says Richard Koeller, an IS managemeot coosultant in Chicago.

IS appeal

No wonder IS executives are intrigued and attracted to governance; it promises to elevate their role, clarify the relationship between IS and the rest of the company and provide a framework for solving many of their toughest problems.

"I was giving a talk to a Gartner Group bunch," recalls Rogow, an IS coosultant in Marblehead, Mass., who often works with Gartner Group. "Three minutes into the talk, someone raised their hand and said, 'I don't relate to this governance issue. What would be the symptoms that we don't know how to govern [information technology]?' I mentioned the elements of governance — direction and priority setting, resonrce allocation, organizational structure, etc. — and went around the room. Ninety perceot of the people in the room said this is their No. 1 problem."

> "Governance is the only lasting way to create rules that prevent chaos, stagnation and [organizational] violence."
>
> **– Paul A. Strassmann**
>
> **Author, "The Politics of Information Management"**

Many members of the New York-based management association Conference Board who heard Strassmann expound on governance at a recent meeting thiok the concept provides fresh insight ioto old problems and proven IS management practices.

Creating a "compact" establishing checks and balances between ceotral IS and users is something "I had not thought of," says Max O. Hopper, senior vice president of IS at American Airlines in Dallas. Yet establishing snch a balance is consistent "with what I've tried to do throughout my career. ... I intend to talk to all our folks abont the model he's described."

Kathy Srittain White, vice president of IS and services at AlliedSignal Engineered Materials in Morristown, N.J., calls it an "excellent idea. I hadn't previously thought in that conceptual framework, but it fits" what we've beeo doing.

Sut perhaps what most attracts these CIOs and advocates to the concept of governance is that it goes to the root of so many intractable problems.

Governance advocates say much of what ails IS are symptoms of a deeper issue: The old planning and budgeting processes and the old model of a central IS function reporting to a chief financial officer and guided by a steering committee have broken down. They no longer work in an era where computing is both pervasive and distributed, and corporations

What is Governance?

The U.S. Constitution divides rights, powers and responsibilities among the citizens, state and federal government and among the executive, legislative and judicial functions at the federal level. It is echoed in the long-established concept of "corporate governance" — the division of power among the shareholders who own the company, the board of directors elected to represent their interests and the executives hired to manage the company. Advocates of IS governance say IS is best managed through the creation — or the evolution — of a constitution-like set of core principles and processes. Such a constitution might establish the following:

We the People ...

Corporate IS goals or mission statement (resembling the preamble of the Constitution).

... to form a more perfect Union ...

The institutions that make, execute and review violations of IS policy decisions. These may include:

- An information technology management committee (legislates IS policies).
- IS management (executive branch).
- IS auditing function (judiciary).

... promote the general Welfare ...

Principles for making IS decisions and managing the IS function. These may include a division of power and responsibilities between:

- Managers at the corporate, business unit, departmental and process level (resembling the division between federal, state and local government).
- IS and non-IS managers. It could mandate user involvement in systems development decisions or IS manager involvement in business initiatives that require the use of information technology.
- Policies or policy-making rules governing outsourcing, systems development, information management, security, etc.

... secure the Blessings of Liberty ...

Rights for technology and information use reserved for employees, managers and directors (a bill of rights).

are decentralizing decision-making authority.

"What was a fairly orderly process now almost becomes anarchy. The information technology governance process in most companies works about as well as the governance process in Bosnia, Haiti and Somalia," Rogow says.

Governance is the only lasting way to create rules that prevent IS from sliding into the chaos of rampant decentralization or stagnating under the heavy hand of central authority, says Strassmann, an independent consultant in New Canaan, Conn. And it is the best defense against organizational "violence" — the bloodletting that occurs when companies and IS organizations are swamped by uneducated enthusiasm for overhyped new technologies and disruptive management fads.

Information structures

Governance also offers an approach to an emerging issue: how corporations should use and manage information. Companies are only now beginning to establish structures to ensure that "individuals have access to the information and knowledge they need to achieve the firm's strategic goals," says Larry Prusak, a principle at Ernst & Young's Center for Business Innovation in Boston.

That's "one of the trickiest management issues for today's companies," Thomas H. Davenport, a professor at the University of Texas in Austin who is affiliated with Ernst & Young, writes in *Harvard Business Review*'s March/April 1994 issue. Sharing information does not come easily in a politically charged environment such as a typical corporation. Davenport proposed a federal model for managing information as the "preferred model in most circumstances" in a Fall 1992 *Sloan Management Review* article.

But what does governance do for chief executive officers and other senior non-IS executives? There's the rub: IS can't go the governance route alone.

Fortunately, CEOs may well be receptive to the concept of governance. In recent years, corporate governance — the division of power among the board of directors, senior executives and shareholders — has become a hot issue for executives. Take, for example, the shareholder revolts that led directors to toss many prominent CEOs, including IBM's John Akers, out of the corner office.

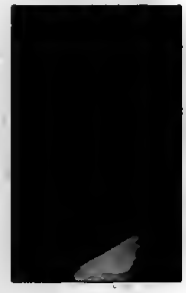
Directors are now beginning to take some oversight responsibility for information technology investments, according to Robert E. Mittelstaedt, vice dean at the Wharton School and director of its Aresty Institute of Executive Education, which educates directors and senior executives. At some financial service and technology-based companies, "I've seen a number of companies which have set up technology committees of the board," he says.

Another sign of interest is a May 1994 draft report on improving corporate governance issued by the Toronto Stock Exchange. The report calls upon directors to take responsibility for "the integrity of the corporation's internal control and management information systems."

Meanwhile, CEOs are becoming interested in applying governance principles to manage their increasingly downsized, decentralized and dispersed corporations.

"The concept of governance — where you are giving people guidelines instead of direction — is one that has found a lot of interest," Mittelstaedt says.

"It's very much a CEO topic these days. A lot of companies are trying to figure out how to manage a decentralized, rapidly changing environment. They find their old command-and-control structures don't work very well. I can think of two or three engagements we've done in the last six months which have addressed this issue," says C. Thomson Ross, a Washington-based director at consultancy McKinsey & Co.



"The key is, don't create bureaucracies in the attempt to create good governance."

– Denis J. O'Leary
Executive vice president and CIO
Chemical Banking Corp.

CEOs probably haven't thought of IS governance yet, but for many it might be a simple step to connect governance principles with a better way of managing IS and information technology expenditures. "If you have the right sort of climate and general management is thinking about those things and is comfortable with it, [IS governance] strikes me as a good and appropriate idea," Ross says.

The right approach

Yet even at such companies, many problems must be avoided if the concept of IS governance is not to perish from the earth.

One precondition for success: Any IS governance philosophy has to fit with the overall corporate governance philosophy. Otherwise, "you're swimming upstream," Ross says.

Each company must evolve its own governance policies rooted in culture and history, much as the Constitution's principles evolved from such antecedents as the Mayflower Compact and the Magna Carta. "There must be a heritage and a culture which is receptive to federalism," Strassmann says. It can't be suddenly imposed, or it will either be rejected or devolve into bureaucracy.

That means "you won't be successful with a standards-based, principles-based governance structure" in firms that successfully operate in a command-and-control environment, Ross says.

And a federalist, constitutional governance approach probably won't travel well outside the U.S. — a factor for multinationals. "Strassmann and I are arguing for a kind of governance that is very American and very hard to export for cultural reasons," Rogow says. Americans have a deep-rooted reverence for their Constitution and its principles that others, including Europeans, find puzzling, according to Rogow.

In addition, any attempt to introduce governance is sure to be a turnoff if it looks to be bureaucratic, academic or a constraint on the flow of information. "People's eyeballs will glaze over if you start talking about what sounds like a bureaucratic control structure for IS," Mittelstaedt says.

No new policies

A new set of what can easily appear to be standard-setting policies is the last thing the world wants to hear from the techie crowd. And few managers have the time to hold the equivalent of a constitutional convention — particularly if they think they have to produce a constitution as long and elaborate as the "model consti-

Perfect Union, *page 112*

Profiles in Governance

Hughes Space and Communications Co.
El Segundo, Calif.

CIO Gary R. Osborn

In 1993, Hughes Space established rules, institutions and a process to manage information, according to CIO Gary R. Osborn.

To manage a specific item of information, the business unit divides responsibility between "process owners," such as a manufacturing vice president, and the IS department. Process owners are the sources of data, and they define its quality, accuracy and accessibility. IS sets rules distinguishing different kinds of data and dictating how it is formatted on the system.

A policy board meets every two to four weeks to decide changes in information policy. Broader information issues are discussed, along with corporate issues, in a quarterly meeting of senior Hughes executives. Osborn sits on both boards. However, Hughes is just beginning to consider ways to govern how information is captured and used, he says.

Chemical Banking Corp., New York

After Chemical Bank and Manufacturers Hanover Trust Co. merged, a business technology management council was established to set technology direction for the combined companies. The council is chaired by Denis J. O'Leary, Chemical's executive vice president and CIO. It includes the top IS executives from both central IS and Chemical's business units, senior non-IS executives from Chemical business units and the controller's office. The council sets policies, standards and guidelines that direct technology policies for both line managers and IS managers.

The council then spun off subcommittees such as the 2-year-old information management committee. The committee is cochaired by O'Leary, the CFO and the head of credit policy. It establishes rules and principles for managing information across the company.

Not all issues are put up for a vote; central IS still makes decisions on control and security issues. "Cooperation may be communicating about what you are doing," O'Leary says.

O'Leary says he has no plans to sponsor a constitutional convention or create a bill of rights. "We're doing many of the things that ought to be done in a convention, but not all at once," he says.

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A More Perfect Union

CONTINUED FROM PAGE 109

tution" in *The Politics of Information Management*. (They don't, Strassmann says.)

"Companies exercising good governance don't pull out a lot of manuals," says Denis J. O'Leary, who is applying governance principles as executive vice president and CIO of Chemical Bank. "They have a style of sharing information, of knowing when they need to have a meeting and when business can just go ahead. The key is don't create bureaucracies in the attempt to create good governance."

> "The information technology governance process in most companies works about as well as the governance process in Bosnia, Haiti and Somalia."
>
> **– Bruce J. Rogow**
> **Independent consultant**
> **Marblehead, Mass.**

Ross says CIOs should establish "a few clear, easily understood principles," not a long list of rules and regulations. General Electric Co. in Fairfield, Conn., and Asea Brown Bovari Ltd. in Zurich rely on leaders to inspire allegiance to their governance philosophy rather than a written set of guidelines, he notes. So if you are an IS executive who wants to make the case for governance, your best bet is to take advantage of those times when you are analyzing technology paybacks with general management. That's a good time to suggest organizational structures that could improve the value of your IS investments.

Clearly it won't be easy to find the right balance between establishing governance guidelines and going too far and antagonizing other executives. But even if you do find a balance, many people simply won't like governance. Many line managers won't want to share the power they already have, Smith notes. Others don't want to be bothered with IS management responsibilities.

"Governance models frequently fall apart because middle management doesn't behave consistently with governance principles. If that happens, it doesn't work," Ross says.

Which means that governance requires — you guessed it — full-fledged CEO support.

If the theorists are right and companies must evolve governance rather than do it, don't expect it to explode into a megatrend like re-engineering. Governance won't catch on in highly centralized or command-and-control-style organizations.

But governance could gradually find its way into many IS organizations. Most corporations are attempting to find a balance between empowerment and central control. If your company is one of those, and if your CEO considers information technology to be a business driver but also a cost headache, a constitutional, federal approach to managing information technology could well make business sense and solve nagging business problems. The positive experiences of companies that have evolved governance principles without calling it governance may be the best proof that it can work.

Just remember that governance can't be rushed into existence even in these fast-moving times and that no one loves rules and regulations. ■

Alter is *Computerworld*'s senior editor, Management. He can be reached at aalter@cw.com.

A smart way to spe

Calendar

DEC. 11-17

Shaping Government for the 21st Century. Phoenix, Dec. 11-14 — This symposium will focus on how to improve the delivery of public services and explore new ways to respond to the public's increasing demands. Topics will include the citizen's role. Keynote speaker is Peter Senge, author of *The Fifth Discipline: The Art and Practice of the Learning Organizations* and *The Fifth Discipline Fieldbook*. Contact: City of Phoenix, Phoenix, Ariz. (602) 262-4714.

Project World Conference & Exposition. Santa Clara, Calif., Dec. 12-16 — There will be 12 preconference workshops, including programs by the Tom Peters Group and Deloitte & Touche; five keynote sessions featuring the latest discoveries in technology; 114 expert presenters; and more than 80 exhibit booths highlighting the latest in project management groupware and software. Contact: Center for Management Research, Wellesley, Mass. (617) 431-9797.

JAN. 1-7, 1995

Macworld Expo. San Francisco, Jan. 4-7 — Contact. Mitch Hall Associates, Dedham, Mass. (617) 361-2001.

JAN. 15-21

First Annual Mobile Communications '95 Conference. Dallas, Jan. 16-18 — The conference will address North American, European and Pacific Rim regions, marketing strategies used in these regions and regulatory and legislative matters aimed at mobile equipment vendors and service providers. Contact: Frost & Sullivan, Inc., Santa Clarita, Calif. (800) 256-1076.

1995 Usenix Technical on Advanced Computing Systems. New Orleans, Jan. 16-20 — Contact. Usenix Association, Berkeley, Calif., (510) 528-8649.

SoftExpo '95. San Jose, Calif., Jan. 17-19 — The conference will focus on business and technical issues facing software companies. Sessions include product development, marketing and sales, technical support, customer service, translation or "localization," finance, licensing, packaging and manufacturing. Contact: Mark Cramer, Expomasters, Englewood, Calif. (303) 771-2000.

Mobile Outlook on Communications and Computing. Atlanta, Jan. 18-20 — The focus areas of the three-day conference will include how to integrate mobile systems into a fixed computing environment, how much of what is now in place must change to permit remote access, how and when to make required hardware and software modifications and why some promising pilot programs succeed while others fail. Contact: David A. Kaminer, Kotch & Polak, Inc., New York, N.Y. (212) 486-6186.

JAN. 22-28

ComNet '95 Conference & Exposition. Washington, Jan. 23-26 — Products and technologies to be exhibited on the show floor will include the following: internetworking hubs, bridges, routers, gateways, modems, network applications, databases, private branch exchange-to-computer applications, multimedia, videoconferencing, LANs, servers, adapters, wiring, backup and network services, local and long-distance services, mobile computing, portable and handheld computers, client software, wireless data services, network management and security. Contact: IDG World Expo, Framingham, Mass. (508) 879-6700.

JAN. 29-FEB. 4

Special Libraries Association 1995 Winter Education Conference: Managing Information Technology. Raleigh, N.C., Jan. 29-31 — Contact: Special Libraries Association, Washington, D.C. (202) 234-4700.

Second Annual Display Manufacturing Technology Conference. Santa Clara, Calif., Jan. 31-Feb. 2 — Contact. Mark Goldfarb, Palisades Institute for Research Services, Arlington, Va. (800) 787-7477.

FEB. 4-10

Demo '95. Palm Springs, Calif., Feb. 5-8 — The conference will include product demonstrations, product premieres, head-to-head product showdowns, sneak previews and technical reviews. Contact: InfoWorld Editorial Events, San Mateo, Calif. (800) 633-4312.

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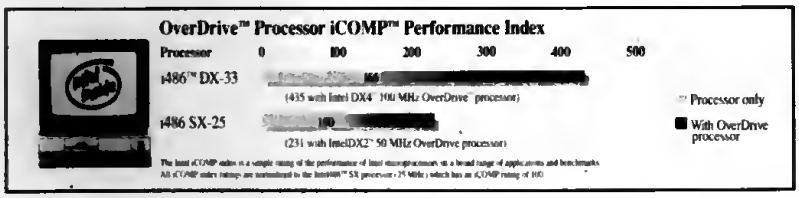

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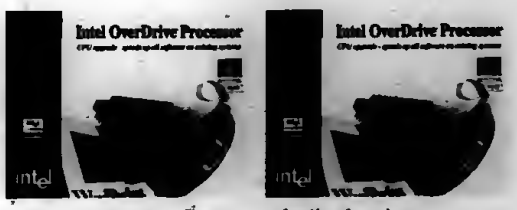

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SOUND

AT ISSUE: *Can academic and research users peacefully coexist with business users on the Internet? One academic user says businesses tend to be poor 'net citizens. That's ridiculous, claims a business advocate.*

O'Neal-Petterson: *The Internet is not a worldwide billboard*

ALAN LEVENSON

BY MICHAEL O'NEAL-PETTERSON

Capitalists create atmosphere of 'greed and control'

There would be an excellent market for a snack food store in the middle of your public library, but that doesn't mean it's a good idea. Should a person have to look at ads for General Motors' latest-and-greatest luxury sedans while looking up information on early 20th century automobile production techniques?

The Internet's history is firmly rooted in the concept of a worldwide library without walls. Why should the corporate giants that already control politics, TV, merchandising and everything else also take over one of the few places where academics can easily exchange information? Why should they be allowed to influence the scope and content of scholarly dialogue?

The Internet is maintained as a place where individuals and institutions are both the providers and takers of information. Volunteers have compiled vast repositories of information, such as Project Gutenberg, which holds classic texts for which copyrights have expired, and the many FAQs (Frequently Asked Questions) in Usenet, a collection of news and discussion groups. It is a medium where information can flow unfettered . . . or so it was.

The sources of communal information are slowly being supplanted by stodgy companies such as Encyclopaedia Britannica and its charge-by-the-word on-line version. In 1990, only 93 companies were registered with the Internet's central registry; today, that number has grown to more than 20,000.

Commercial ventures large and small want to take advantage of the 'net community's sheer numbers — an estimated 20 million plus — without looking at why these people use the 'net. Clearly business' intent is to profit, not contribute to research.

No longer is it a simple mixture of academics, truth seekers and wackos bandying about theories and thoughts. Instead, the Internet atmosphere is becoming one of greed and control.

Is it possible, for instance, that we will one day see universities' Internet feeds "sponsored" by various companies, only to have the feeds pulled because of disagreements over content or accessibility?

The main argument for commercializing the Internet is that companies have the financial resources to expand its capabilities. But I have yet to see this happen with the thousands of companies that have been using the 'net during the past several years. Some of the best innovations — the World-Wide Web protocol and Mosaic, for instance — were originally developed at research institutions to further the purposes of research.

Currently, the Internet is a place where everyone, no matter how odd his tastes, can find something of interest. In this way, it serves a large but individualistic group of people, many of whom would not be at home in a more structured commercial environment.

As the 20,000 companies start making their presence felt, though, that commercialization will mean control. We can look forward to a corporate future where the 'net will be all things to all people and thus satisfy no one — kind of like network TV.

We can already see the effects of the new corporate presence in the increasing number of court cases in the past year over "stealing" domain names and threatened lawsuits over copyright infringement.

For instance, 'net-savvy Princeton Review, Inc., a New York-based company that sells Scholastic Aptitude Test preparatory courses, set up a domain name on the Internet by registering not only its own name but also that of its main competitor, Kaplan Education Centers in New York. Kaplan filed suit, and though the companies settled out of court, it is just this type of unwelcome antic that has come with the 'net's corporate citizens.

The 'net community has handled its prob-

O'Neal-Petterson, *page 120*

O'Neal-Petterson is computer and facilities coordinator at Occidental College Library in Los Angeles. His Internet address is mop@oxy.edu.

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(c) OS/2 (g) Windows
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of the Internet

The Internet isn't an academic playground

BY JAYNE LEVIN

There is enough bandwidth for both of us. The next time I hear someone from the academic or research community whine about business use of the Internet, I'm going to throw my Birkenstocks at them.

Academics and researchers have been spreading misinformation about appropriate use of the Internet for too long. Don't they know that the Internet is not a cyberwetlands? It is not off-limits to capitalists. It is not an academic toy.

Business has a right to use the Internet and profit from it, although not in the way "green card" lawyers Canter & Siegel did when they blanketed about 6,000 Usenet news groups in April offering legal services to immigrants. But more on that in a moment.

Academics and researchers who protest that capitalists are spoiling their domain should stop straining their eyes through a microscope and step back to take a good look at the real world. It's changing, and businesses large and small need to find ways to leverage whatever resources they have to stay competitive.

The Internet can be a company's most powerful ally. Boston law firm Hale & Dorr uses the Internet to speed up and cut the costs of some routine work. Lamp Technologies, Inc. in Bohemia, N.Y., uses the World-Wide Web to reach a global audience and sell 10,000 different types of lightbulbs. Bellevue, Wash.-based Med-Search America, Inc. uses the Internet to help people in the health care industry find jobs.

If academics want to target inappropriate use of the Internet, let me remind them that nearly half of the Top 25 news groups contain sexually explicit material. Talk about a waste of computing resources.

True, 25 years ago, academic and government researchers built what has become the Internet. But back then, the network chugged along at 56K bit/sec. and was unreliable. Later, it became so horribly congested that in 1987 the original Archie server had to be turned off because it was generating too much traffic.

In 1990, big business helped bring about a major overhaul of the National Science Foundation network (NSFnet), the core of the Internet. If it weren't for the private sector and millions of tax dollars, the Internet might still be a gravel road on the information superhighway.

Today, the NSFnet is capable of transmitting data at 45M bit/sec. or greater. Outages are less of a problem, and networking services have been extended to a greater number of users. Two private sector initiatives — CommerceNet and Elnet — are working toward making the Internet a more secure environment, which benefits the entire networking community.

Moreover, NSFnet is undergoing a dramatic upheaval in how it operates. It is being replaced by a new architecture that will further segregate commercial and research and development traffic. There will be a separate network, the very high-speed Backbone Network Service, dedicated to R&D. Because of the way IP traffic is routed, business users won't even bump into the research crowd.

Oh, and let's not forget academic propaganda — that the federal government's Acceptable Use Policy (AUP) prohibits commercial traffic over the Internet. The government backs business use of the Internet. Tony Villasenor, who coauthored the NSF's AUP and now manages the NASA Science Internet, told me that the government "absolutely encourages commercial entities to hook into the Internet."

Villasenor also says advertising on the Internet does not constitute a violation of the AUP. The AUP applies to only the backbone traffic of federal agencies. Under the new architecture, the AUP does not even apply, so it's a moot point.

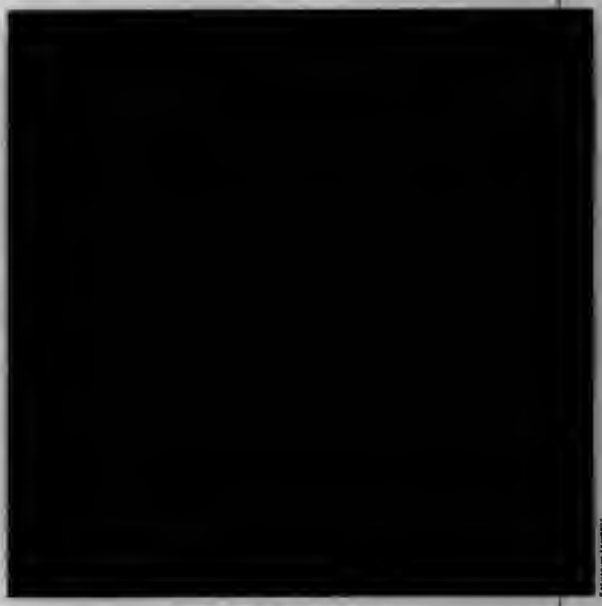
It is unfortunate that the way Canter & Siegel advertised its services gave the Internet a black eye. The firm created a stir last spring when it posted an advertisement for legal services to immigrants participating in a government green-card lottery. Canter received 36,000 electronic-mail messages in two days. Indignant Internet users shot back with 450M bytes of flame mail, charging that the firm took advantage of the Internet. Canter & Siegel says it generated $50,000 in business from the ad.

Respectable companies do not conduct their business in this manner. They know that goods and services should be sold over the Internet like perfume, not cars.

There are successful ways to advertise on the Internet without clashing with the culture of the 'net. Companies can set up a World-Wide Web or gopher site. They can make an announcement on the National Center for Supercomputing Application's "What's New" home page. They can use a "mailbot," which sends an automatic reply when an incoming E-mail message is received.

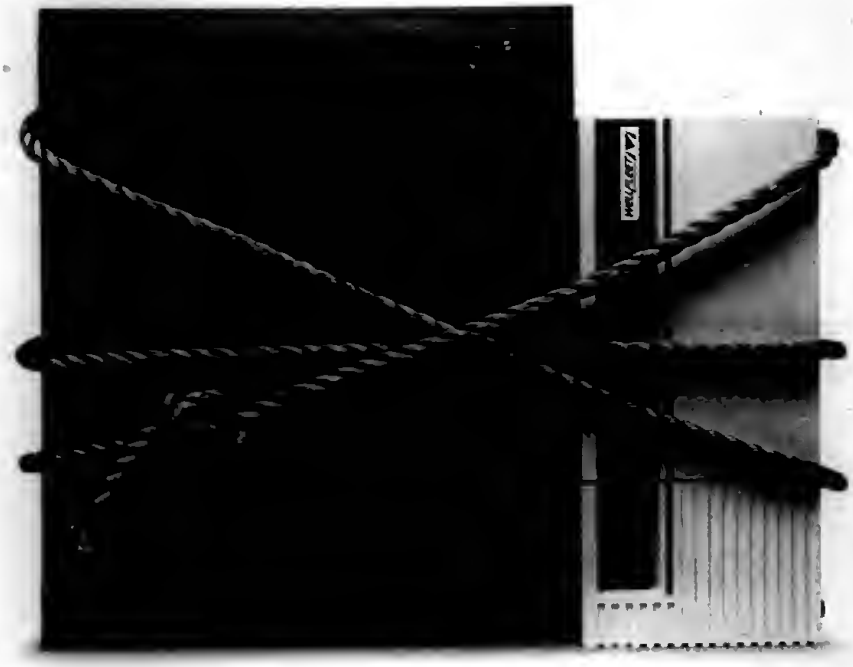
With new multimedia applications looming and use of the Web increasing, the clash between the academic and commercial worlds is likely to get worse before it gets better. It comes

Levin, *page 120*



Levin: *Business has paid its fair share to participate on the Internet*

Levin is editor of "The Internet Letter" in Washington and co-publisher of "The Federal Internet Source."



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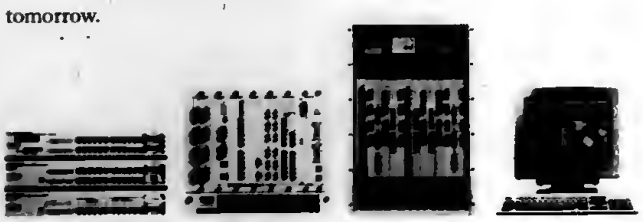

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BOUND FOR SUCCESS

O'Neal-Petterson

CONTINUED FROM PAGE 116

lems for many years without going to court. Now it's being dragged into the litigious muck by big business, which sees a huge cash cow waiting to be slaughtered.

Before you get the wrong idea, let me say that the Internet is not completely hostile to every type of business and advertising — as immigration attorneys Canter & Siegel would have you believe. They're the ones who spammed the 'net last spring with an advertisement for their services for immigrants. ("Spamming" is the practice of spraying the same message across multiple news groups.)

SOUND

Readers of print media should not have to endure ads with no relevance to 99.9% of readers. Nor should users have to endure an immigration proclamatioo oo the 'net in alt.folklore.urban. There are appropriate places for all types of information, and corporate entities must learn this.

I fear it will not be long before corporations bypass passive Web billboards and become more aggressive. As they push the 'oet toward a pay-per-byte model, we will face a larger oumber of unsolicited ads attempting to influeoce our opinioos. It will be a world of on-line billboards and toll booths, and the quest for knowledge will be squeezed out by the quest for the almighty dollar.

Work is under way at the National Science Foundation oetwork (NSFnet) to separate research and commercial bandwidth on the 'net, bot it addresses only the technical aspect of academic interests being overwhelmed by commercial ones. It does not create a barrier or even a buffer between research and profiteering.

While cootinued commercializatioo nf the 'net is inevitable, it is up to the academic community to band together to protect our rights and prevent the appropriation of oor most coveted shared resource.

We may oot be able to stop them from coming, but we can at least work to educate new users — corporate or otherwise — and make clear the consequences for those who would grab control. Many have suggested boycotting companies that severely compromise "netiqoette." Others have called for an all-out publicity war to combat the misinformation being spread by companies such as Canter & Siegel.

Canter & Siegel portray the Internet community as a bunch of whining hackors who don't want their space invaded — rather than as worldwide community of more than 20 millioo that has developed civilized rules of etiquette. They see no reason to follow such rules. Until they do, some of us in the academic and research community see no reasoo to accept them as good 'net citizens. ■

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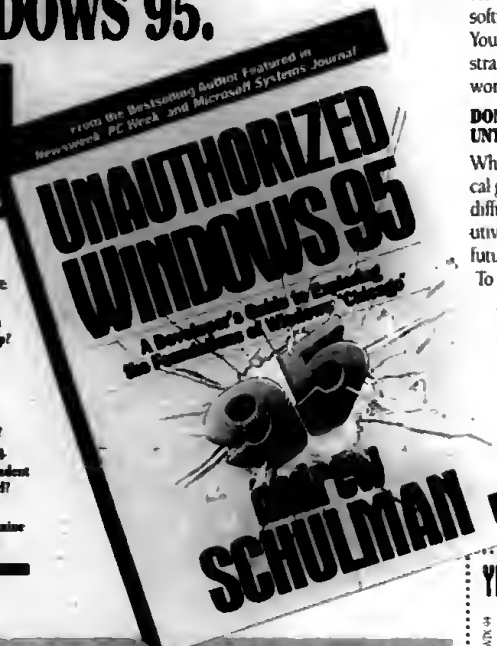

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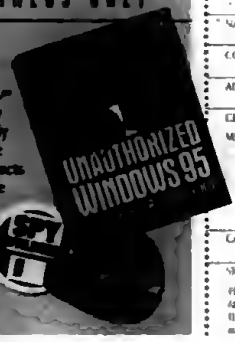

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Levin

CONTINUED FROM PAGE 117

down to network congestion.

But solutions are in the works that will help mitigate the potential problem. Usage-based pricing is one of them. If fees are structured properly, usage-based pricing should accommodate everyone by prioritizing important traffic. Users who rely heavily oo E-mail should not be penalized by this pricing scheme. ASCII traffic generates hardly any congestion.

Uoiversity of Michigan economists Hal Varian and Jeffrey MacKie-Mason are developing "smart markets" — auctioo-based schemes in which prices adjust to the current state of congestion. Each user would include a bid in each packet seot to the network. The bid would indicate the user's maximum willingness to pay for immediate service, and the network would sort the bids from highest to lowest.

Business has paid its fair share to make the internet the vibrant commodity it is today. Why should the academic community cootioue to get a free ride? It is a good thing that the federal government is phasing oot subsidies to academic institutions to link up to the Ioternet. ■

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DeSTINeD FOR CHANGe

The only advancement opportunity open to network administrators at some firms is a slot on the help desk

By Dave Yakerson

Network administrators might resent the title change and responsibility that comes with a move to the help desk. Like me, these professionals are highly technical and view this move as a step backward. But in many cases, the help desk is the only career path available.

The problem is better software. As more and more developers offer good quality software that runs on virtually all types of hardware and network types, compatibility issues have all but disappeared. Where network administrators once spent long hours investigating problems with cable testers and scopes, today's software handles that almost independently. Powerful network design tools take the guesswork out of building tools, reduce labor and are reasonably priced. It's no wonder companies have bought them.

So what's left for network administrators to do?

Talking with information professionals at similar-size firms, I've learned that many companies, including my own, have handed over network monitoring duties to the help desk. Administering the network allows the help desk, already the primary focal point between end users and information systems, to notify users about problems before users notify them. The goal: better customer service.

As help desks become increasingly responsible for most of the tasks formerly associated with network administration — from user maintenance to network monitoring — many smaller IS departments have eliminated the network administrator's position. However, in large and medium-size departments, IS managers have used the opportunity to reallocate the administrator's time.

In companies where customer service takes precedence over reducing head count, the new home for former network administrators may be on the help desk. Here they stay in touch with traditional administrative duties.

Learning experience

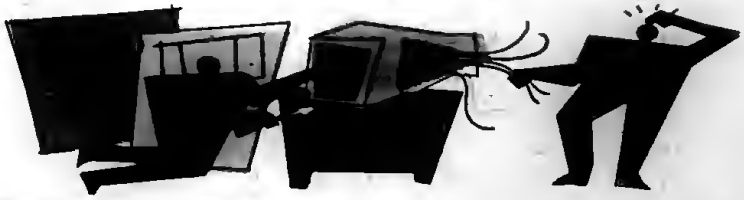
As help desk analysts, we're more involved with planning, coordinating and implementing projects such as new server installations and network expansion. Moreover, I've been given the chance to pool my knowledge with other help desk members, sharing information about how the network functions. In return, I've learned more about software than I would have been exposed to otherwise. More important, I've learned to interact with nontechnical people and provide better customer service.

Like many network administrators, I haven't always been content with this change. The thought of increased interactivity with users was unpleasant to me at best. Also, the help desk has traditionally been a stepping-stone into network administration, not vice versa.

To transition successfully, I needed to see the change in a positive light — it was an opportunity for me to get the customer service and interpersonal skills I needed to compete in today's corporate environment.

This doesn't necessarily mean that all network administrators will eventually land on the help desk. Companies with large complicated networks and systems still need network personnel with specialized skills. But in office environments such as my own, the change is already taking place. ■

Yakerson is a systems and network administrator at Bridgeport Hydraulic Co. in Bridgeport, Conn.



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Managers' TIPS

BY DAVID A. KELLY

Breaking the NEWS

HOW TO TELL YOUR STAFF ABOUT A CORPORATE DOWNSIZING

You've been told to cut your staff in half as your company downsizes during the next year. How do you simultaneously reduce staff, make strategic technical changes and keep morale and productivity high?

As hard as it is to lose a job, it's not easy to let someone go either, information systems managers say. What's their advice for breaking the news? Shoot from the hip, keep the human factor in sight and avoid the following simple yet common mistakes.

Don't make the decision alone. Put employees in your shoes. When Aroon Maben, vice president of technology services at Novus Financial Corp. in Riverwoods, Ill., was faced with the task of cutting 35 people during a downsizing, he asked them to look at it from his perspective.

"When employees wanted to know why they were being let go," Maben says, "I suggested they compare themselves to the remaining workers and asked them: 'If I could only keep one of you, who should I pick?' " As painful as it sounds, giving his workers the chance to objectively evaluate themselves lessened the emotional aspects of the change for Maben. "Most were honest in their self-evaluation and realized that the other person was a better fit, given the criteria and the skills required for the future."

Don't sugarcoat the situation. When Paul Bellack, vice president of systems and technology at Speedy Muffler King, Inc. in Toronto, downsized from an IBM 4381 to dual AS/400s, he was frank with his staff. In one-on-one interviews, he talked through the reasons for downsizing with the eight employees being laid off and offered them an employment contract that lasted the duration of the transition. "Be open with your people," Bellack says. "People appreciate the honesty and will commit to the process."

Don't ignore new needs. How you handle staff cuts has an effect on both the people being let go and on remaining staffers.

Designate a manager or human resources contact as an outplacement coordinator who can help set up interviews and guide employees through the process. According to Maben, "you have to go the extra mile for the people being let go — getting them career counseling, advanced training or whatever they need. How you treat your outgoing people has a tremendous impact on the employees left behind."

Don't forget the goal. Make sure you have a vision of the goal in mind and use that to help energize your employees. "We used the new tools and capabilities of the AS/400 as a carrot to motivate the staff," Bellack says. "We spent a huge amount of money to retrain and get employees up to speed on new technologies.

Experts suggest putting the best light on the situation by finding something positive to sell.

Don't play favorites. Spend some time examining your employee pool to identify who can survive the emotional and professional changes needed.

When Novus downsized, Maben looked not only at an employee's quality of work and how he dealt with users, but he also looked for a "can-do" attitude. "If you look at your employees objectively," Maben says, "it's fairly obvious who's good and who's got some work to do."

Don't break promises. Make sure you actually follow through on any promises you make. Too often there is a delay between what management says will change and what actually gets changed, Grady says. "Employees become frustrated and lose faith in a company's ability to change."

Don't be dull. Get your remaining people excited by showing them management is committed to improving their skills and productivity. "You need to create an exciting environment," Maben says. "When we started development of new software, we bought the best tools, workstations and training for the remaining staff."

Don't turn one downsizing into many. As the old adage goes, if you have to cut the tail off a dog, do you do it all at once or do you cut off an inch every week because you feel sorry for the dog?

Don't fail to make the tough decisions the first time and then have to go back to employees later and ask for more.

"It's extremely important to do it right," says Sharon Grady, president of the Grady Co., an organizational change consultancy in Waltham, Mass. "Employees may not support a second chance."

Maben agrees: "It can be extremely difficult for both the managers and employees, but you have to downsize in one fell swoop, not dribs and drabs." ■

Kelly is a free-lance writer in West Newton, Mass.

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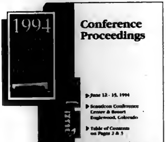

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PROGRAMMER ANALYST (Ref: 114194) [2 openings] to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; coordinate & monitor the development effort, interacting with the client, providing technical support to the development team and evaluate user requirements for enhancements to the sys., using IDEAL, DATACOM/DB, CICS & DB2, entirely on IBM 3090 using MVS/ESA, CICS, DB2, IDEAL, DATACOM/DB, & COBOL, INTERTEST, SMARTTEST or EXPEDITOR, MS PROJECT & EXCEL. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, analysis, design, prototype development, programming & testing on IBM 3090 with MVS/ESA & using DB2, CICS, SMARTTEST, COBOL $54,000/yr. 40 hr/wk., 8:30-5p.

PROGRAMMER ANALYST (Ref: 114094) [2 openings] to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; analyze, design & development of systems like Data Conversion, Integrated Retail System & Part No Expansion, analyze, code, test & support of the overall sys. which also involves extensive interaction with user, using IBM 4331, IBM 3090, DATA General MV-7800, OS/VS1, MVS, VSAM, JCL, ICEMAN, ROSCOE, CICS, DB2, IMS, COBOL II, INSTALL/1, DESIGN/1, DCCS & DISAM. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Analyst/Programmer, Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, analysis, design * development on IBM 4331 running OS/VS1 & using ROSCOE COBOL, VSAM, JCL, ICEMAN & DATA GENERAL MV-7800 $41,040/yr 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 114294) [2 openings] to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs, analyze, design, develop & implement computer software for clients' EDP systems, enhance & customize the manufacturing & distribution management software package CHESS, including design & development of new modules, redesigning & maintenance of the existing modules, database modifications & system testing; using the 4GL PRO-IV & superlayer on various platforms & under different operating sys. such as UNIX, VMS, using VAX & IBM computers, relational databases, ADT Userview & In-Line Transaction Processing Sys. Reqs. Bach in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Associate Systems Executive or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, software development in PRO-IV on VAX/VMS & UNIX. $40,000/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 114594) [2 openings] to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; lead Analyst for sys study, design, development & implementation of a large integrated database sys; user requirement study, feasibility & technical analysis, logical & physical data modeling using EXCELERATOR case tool, system design, development of programs, testing, porting of applications on MVS & VM, technical support & development of application using IBM ES9000, MVS/ESA, IBM PC-AT, Banyan Vines Network, CICS, DB2, COBOL II, Easytrieve, Focus, CSP/Application Development Enabler, SPUFI, TSO/ISPF, QMF, Query Callable Interface, REXX, JCL, CLIST, VM/ESA, SQL/DS, CSP, MS Windows, MS WORD; design & development in Graphics, CAD/CAM on UNIX based Workstations preferred. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Marketing Service Manager, Computer Consultant, or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, system development on IBM ES9000 & using MVS/ESA, DB2, COBOL II, CSP/Application Development Enabler, TSO/ISPF, QMF, REXX, JCL, CLIST, SQL/DC, CSP; development of CAD/CAM projects & using UNIX. $50,400/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 114494) [2 openings] to consult with clients in ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems; analysis, design & development of integrated information system using Knowledgeware's ADW (Ver 2.7.01 & 2.7.02) for a large engineering products manufacturing company; using all workstations in ADW, for process design, database design, development/construction, & technical support of the entire life-cycle of an IS project with ADW, design & development experience on IBM mainframe (IBM ES9000, IBM-3090) with MVS/ESA (CICS/TSO) operating sys using languages CSP, MF COBOL, VS COBOL II with DB2 RDBMS in CICS & IMS DB environment, JCL, QMF, VSAM, REXX. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 18 Mos. exp. in job offered or 18 Mos. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Consultant, or Senior Officer. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, coding programs in COBOL, CSP, DB2, CICS on IBM ES-9000 in MVS/ESA environment; analysis, design, construction & documentation using CASE tool ADW $41,040/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 114694) [2 openings] Lead analyst for analysis, design and development of software systems on IBM mainframe; user interaction for requirement analysis, system design, development, testing & user training; using DB2 database, CICS, ISPF, JCL on IBM mainframe under MVS Operation System, COBOL, C, REXX, MS SQL Server, Visual Basic & MDI Gateway in Windows environment; developing software in MS-DOS & UNIX environment; Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, System Engineer, or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, analysis & development on IBM mainframe using CICS, DB2, ISPF, JCL & MVS/XA. $48,156/yr. 40 hr/wk., 8:30a-5p.

PROGRAMMER ANALYST (Ref: 116694) [2 openings] to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs; analyze, design, develop & implement computer software for clients' EDP systems including Manufacturing, Financial Accounting, Purchasing, Direct Store Delivery & Price Modeling, & Capital Expenditure Management Sys., must with users to gather requirements, process flow & dataflow technical support provided will be for design of applications on the IBM 3090/ES9000 mainframes & MVS/XA, MVS/ESA operating systems and WANG VS100 & VS OS operating sys using TSO, ISPF, COBOL II, DB2, IMS DB, VSAM, JCL, CLIST, PANVALET, EASYTRIEVE, DESIGN/1, INSTALL/1 VS COBOL, PROCEDURE, EZQUERY, VSREPORT. Req's. Bach in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis or its equiv & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Senior Programmer, Project Leader, Senior Software Engineer or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include, in whole or part, porting WANG application to IBM platforms; maintenance & enhancement of Accounting system, & using VS COBOL, PROCEDURE, EZQUERY, VSREPORT, MVS/ESA, DB2, JCL, VSAM, CLIST, EASYTRIEVE. $49,000/yr. 40 hr/wk., 8:30a-5p. Send resume to 7310 Woodward Ave, Rm 415, Detroit, MI 48202 & include Ref # Employer Paid Ad.

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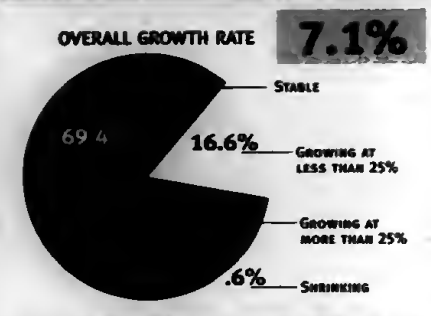

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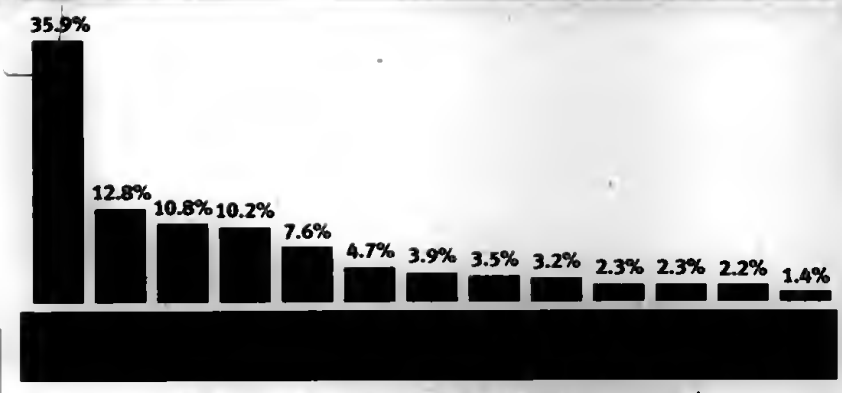

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WISE

Unix server: leases on the rise

By Julie Hart

Leasing Unix servers may not bave seemed practical in the past, but the speed of technology turnover is making it more appealing.

"I would estimate that 25% of all Unix servers in place today are leased," says Mike Vargo, vice president of information technology management at Gartner Group, Inc. in Stamford, Conn. "I think this number will go np over time beeause the tendency is to increase leasing when technological obsolescence is high."

Currently, price/perfnrmance rates of Unix-based machines are moving at a rate of about 40% per year, according to Vargo. That means the Unix server you buy today will be leapfrogged next year by one that has a 20% bigher performance rating and is 20% cbeaper. The result is machines with dramatically shortened life cycles.

Keep this in mind

"Unix servers lend themselves well to leasing since the environment is moving so quickly," says John Sheaffer, product manager for open systems at Forsythe McArthur in Skokie, Ill. "Companies that are continually growing and changing their system should consider leasing."

And the situation isn't expected to change any time soon, says Franc Romano, director of server research at Aberdeen Group in Boston. "With the second wave of client/server, scalable Unix servers are going to take off in t995," he says.

Rules to live by

If leasing Unix servers makes sense for your site, you must barter for the best possible lease agreement. To begin with, be sure to design a master lease. "Over a five- to six-year period, it's not unusual for a company to have to deal with 30 to 40 lease contracts," Vargo says. Administering these contracts without some sense of consistency can be difficult at best.

> THE BEST RULE OF THUMB IS TO AVOID A LEASE IF YOU PLAN TO KEEP A UNIX SERVER FOR MORE THAN FOUR OR FIVE YEARS, SAYS NEAL LULOFS, MARKETING COMMUNICATIONS MANAGER AT COMDISCO

A master lease is also invalnable when comparing bids. "All of the lessors are bidding on the same terms and conditions, making it easy to set lessors apart," Vargo says. With the same contract that includes identical terms, you can avoid the ongoing review of paperwork when a server needs an upgrade.

Furthermore, for a good comparison, analysts recommend firms get three to six lessor bids for each lease arrangement. "Don't just get prices," Romano says. "Make sure you see the agreement as well."

The more flexible the lease, the more options you have when replacing or npgrading equipment as needs change. "If a company is considering replacing their mainframe with a Unix server, for instance, a flexible lease will allow them to upgrade their server in stages as they move off the mainframe," Sheaffer says. An inflexible lease will restrict upgrades or make them so expensive that purchasing a Unix server would have been more advantageous.

If you don't have leasing experience, consult an expert. "There are a variety of consultants out there who will review lease contracts nr even develop them," Vargo says. "Plns, there are plenty of courses available to help companies make intelligent leasing decisions."

Most important, be warned that the length of time a site will actually nse a server is misjndged at least half the time when negotiating a lease, Vargo says. As a result, companies get stuck paying extensions or end up buying the machine at a predetermined buyout rate.

The best rule of thumb? According to Neal Lulofs, marketing communications manager at Comdisco, Inc. in Rosemont, Ill., avoid a lease if you plan to keep a Unix server for more than four or five years. ■

Hart is a free-lance writer in Sunnyvale, Calif.

Lease VS. purchase

A "lease-vs.-buy analysis" compares the costs of leasing and buying equipment such as Unix servers. The analysis is based on the assumptions used for residual value, cost of funds, tax rates and so on. The example below can help you analyze your own situation.

Assumptions:

Example:	Lease	Purchase

Source: Comdisco, Inc., Rosemont, Ill.

FIRST SEMINAR in Lowell Mass., maintains current information on more than 100,000 nationwide professional and technical seminars, including ones on computer leasing. Some of the classes include "Auditing the Equipment Leasing Function" and "Computer Negotiations Workshop." For more information on these and other leasing workshops, call (800) 321-1990.

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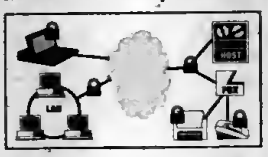

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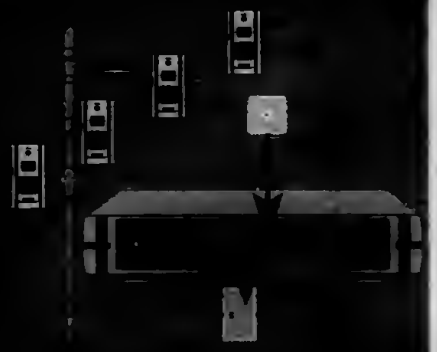

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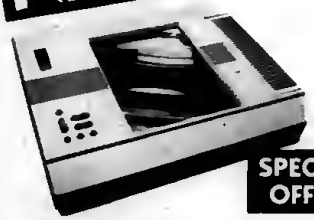

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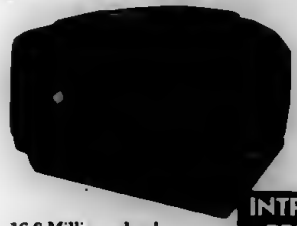

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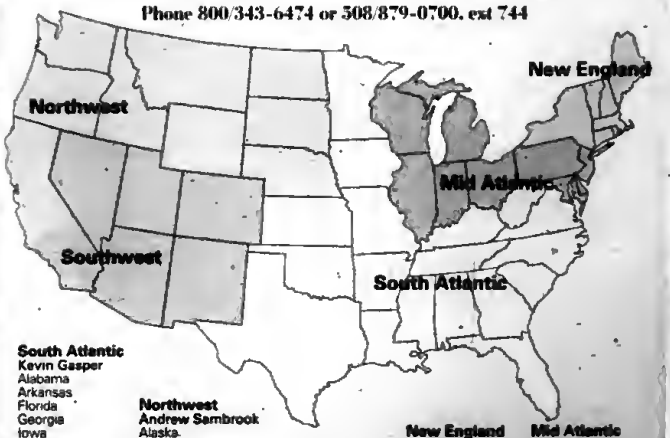

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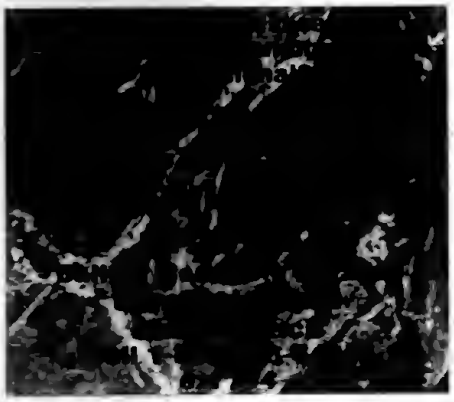

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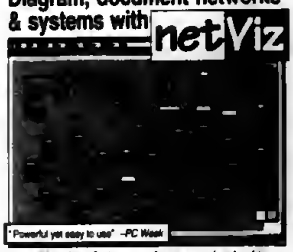

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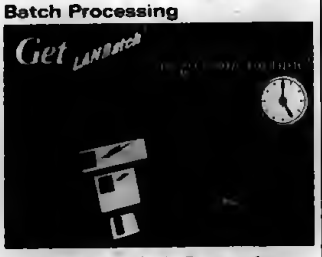

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Centillion Networks, Inc. 52
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Clarify, Inc. 16
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Computer Associates International, Inc. 10
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D. H. Brown Associates, Inc. 49
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Dell Computer Corp. 24
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Disctec Corp. 50
DSC Corp 16
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GTE Personal Communications Services 20
Gupta Corp. 16

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Hewlett-Packard Co. 8,4,10,14,16,24,49,52,75,93,101
HoniCorp, Inc. 29
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Informix Software, Inc. 10
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Intel Corp. 6,8,24,32,49,50,70,93
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McCaw Cellular Communications, Inc 20
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MCI Communications Corp. 15,68
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Ocean Isle, Inc. 44
Octopus Technologies, Inc. 12
Olicom USA, Inc 52
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Unocal Corp. 12

V

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Walker Richer and Quinn, Inc. 93
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X

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Y

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Gainers / Losers

Percent

Gainers		Losers	
Rasterops (L)	9.5	American Software Inc.	-20.0
Gupta	9.0	Proteon Inc.	-14.9
AST Research Inc.	8.2	Software Publishing Corp.	-13.3
Emulex Corp. (H)	7.0	NetManage Inc.	-13.2
Group 1 Software	5.6	Manugistics Group Inc.	-12.9
Data Switch Corp.	5.6	Platinum Software	-12.4
CE Software (L)	5.6	Netrix Corp.	-12.3
Progress Software Corp.	5.5	Exabyte	-12.2

Dollar

Gainers		Losers	
Progress Software Corp.	1.75	PeopleSoft	-6.75
Intel Corp.	1.69	Hewlett Packard Co.	-5.25
Optical Data Systems Inc. (H)	1.25	Stratacom Inc.	-4.75
Gupta	1.13	Xerox Corp.	-4.75
AST Research Inc.	1.00	Oracle Corp.	-4.50
Boole & Babbage	1.00	Cabletron Systems	-4.38
Emulex Corp. (H)	0.75	Xylogics Inc.	-4.25
BellSouth Corp.	0.75	ITT Corp.	-4.25

Fears of increasing interest rates caused volatile big technology stocks to drop significantly. IBM, Motorola, Inc., Hewlett-Packard Co. and Texas Instruments, Inc. all fell in last week's trading.

[redacted]

Modem makers face challenge

Now that **Hayes Microcomputer Products, Inc.** has filed for bankruptcy, Wall Street analysts say the modem market has actually gotten a little bit tougher.

Maribel Howard, an analyst at International Data Corp. in Framingham, Mass., said Hayes' competitors will be scrambling to steal market share from the onetime modem leader while it struggles to get back on its feet [CW, Nov. 14].

Current market leader **U.S. Robotics, Inc. (USRX)**, which will soon merge with **Megahertz Corp. (MEGZ)**, will probably be among the companies trying to capitalize on Hayes' situation, said Joe Noel, an analyst at Hambrecht & Quist, Inc. in San Francisco.

"U.S. Robotics definitely wins in this deal," Noel said. "Hayes is not nearly as big as most people thought, and filing for bankruptcy will hurt [them with] a lot of their accounts."

The void left by Hayes aside, Robotics and other modem makers face a number of other challenges.

According to Antoine Tristiani, an analyst at SouthCoast Capital Corp. in Austin, Texas, modem manufacturers have to meet the new standard for high-speed communications if they want to do well in the market.

"Robotics is the only company shipping V.34 modems in volume because it makes its own chip sets," Tristiani said. "The other vendors don't, so they are about three to six months behind."

While Hayes had its own internal manufacturing troubles, competitive pricing, increasing costs and higher demand for products are factors pressuring all modem makers, Howard said.

"Hayes' situation is proof of how hard it is to be a modem vendor," she said. —*Erin Callaway*

More for less

Although both stocks are solid, SouthCoast Capital recommends that investors buy stock in Megahertz now in order to own U.S. Robotics stock at a lower price after the companies merge

	Closing price	Recommendation
Megahertz	12 1/4	**Strong Buy**
U.S. Robotics	39 5/8	**Strong Buy**

Nov. 23 Stock Ticker

Exch	52-Week Range			Nov. 23 3 pm	Wk Net Change	Wk Pct Change
[illegible]						
OTC	46.00	17.50	3COM Corp. (H)	42.38	-0.38	-0.9
NYS	43.38	36.25	Ameritech Corp.	40.00	-0.38	-0.9
NYS	57.13	49.50	AT&T	50.25	-2.25	-4.3
OTC	26.50	12.75	Banyan Systems Inc.	17.38	-0.94	-5.1
OTC	43.88	18.63	Bay Networks Inc.	24.13	1.50	-5.9
NYS	62.00	49.00	Bell Atlantic Corp.	30.25	-0.88	-1.7
NYS	81.38	30.50	BellSouth Corp.	52.75	0.75	1.4
NYS	21.38	10.00	Bolt, Beranek & Newman	18.13	-0.25	-1.4
OTC	15.75	8.00	Brooktrout Technology	12.25	-0.38	-3.0
NYS	53.00	33.06	Cabletron Systems	45.75	-4.38	-8.7
OTC	41.00	10.00	Centigram Communications	19.25	1.00	-4.9
OTC	41.00	21.00	Chipcom Corp.	40.00	-2.50	-5.9
OTC	80.75	18.75	Cisco Systems Inc.	31.13	-3.50	7.4
OTC	16.13	7.50	Compression Labs Inc. (L)	3.50	-0.50	-6.3
OTC	13.38	5.13	Computer Network Tech.	6.50	-0.38	-5.5
OTC	32.00	7.50	CrossComm	9.63	-0.38	-3.8
OTC	3.00	1.50	Data Switch Corp.	2.38	0.13	5.6
OTC	35.00	17.88	DSC Communications	25.13	-3.25	-11.4
OTC	60.50	20.00	FORE Systems Inc. (H)	57.00	1.00	-1.7
NYS	34.88	8.25	General Datacomm Inds.	27.00	-3.13	-10.4
NYS	37.88	29.50	GTE Corp.	30.38	0.25	0.8
NYS	95.97	78.63	ITT Corp.	80.63	-4.25	-5.0
OTC	39.00	21.00	MCI Communications Corp. (L)	21.38	-0.25	-1.2
OTC	15.75	8.13	MICOM Communications Corp.	13.50	0.50	-3.6
OTC	10.83	4.00	Microcom Inc. (H)	9.63	-0.38	-4.9
OTC	31.00	11.25	NetManage Inc.	34.75	3.75	13.2
OTC	7.38	4.00	Netrix Corp.	6.25	-0.88	-12.3
OTC	8.75	3.25	Network Computing Devices	4.13	-0.38	-8.3
NYS	33.25	7.38	Network Equipment Tech.	18.50	-2.38	-11.4
OTC	23.38	13.25	Network General	20.13	-1.63	-7.5
OTC	9.63	6.38	Network Systems Corp.	6.94	-0.31	-4.9
NYS	68.75	26.50	Newbridge Networks Corp.	32.25	2.25	-6.5
NYS	37.25	26.00	Northern Telecom Ltd.	31.75	-2.00	-5.9
OTC	38.63	13.38	Novell Inc.	18.75	-1.00	-5.1
NYS	63.75	33.25	Nynex Corp.	38.38	-0.38	1.0
OTC	30.00	15.38	Octel Communications Corp.	20.75	-0.25	-1.2
OTC	26.25	10.75	Optical Data Systems Inc. (H)	25.38	1.25	5.3
OTC	7.38	2.50	Penril Data Comm Networks (L)	2.38	-0.19	-1.0
OTC	22.50	10.00	PictureTel Corp.	19.13	-1.63	-7.8
OTC	7.88	2.13	Proteon Inc.	5.00	-0.88	-14.9
OTC	14.38	2.75	Racotek Inc.	3.75	-0.19	-4.8
OTC	31.25	4.25	Retix	4.50	-0.63	-11.2
NYS	33.35	13.44	Scientific Atlanta Inc.	19.88	2.13	-9.7
NYS	45.25	36.75	Southwestern Bell Corp.	41.63	-0.38	-0.9
NYS	40.13	30.25	Sprint Corp. (L)	31.00	0.25	0.8
OTC	26.75	13.38	Standard Microsystems Corp.	21.88	-1.38	-6.4
OTC	61.00	13.00	Stratacom Inc.	53.00	-4.75	-8.2
OTC	15.25	3.00	Telebit Corp.	4.56	-0.25	-6.4
OTC	46.00	23.00	US Robotics	38.00	-2.13	-5.3
NYS	47.75	35.63	U S West Inc.	36.50	0.63	1.7
OTC	28.25	12.75	Xircom	17.50	0.38	2.2
OTC	37.00	13.25	Xylogics Inc.	32.50	-4.25	-11.6
OTC	28.13	11.25	Xyplex Inc.	27.75	0.00	6.0
PC and Workstations [illegible]						
OTC	7.50	3.00	Advanced Logic Research	4.75	0.00	0.0
OTC	43.75	24.63	Apple Computer Inc.	36.75	3.13	-7.8
OTC	33.00	10.38	AST Research Inc.	14.00	1.00	8.2
NYS	42.00	13.43	Compaq Computer Corp.	37.63	-1.13	-5.3
OTC	47.38	19.13	Dell Computer Corp.	42.25	-2.88	-6.4
OTC	25.00	9.75	Gateway 2000 Inc.	21.25	-0.38	-1.7
NYS	102.50	71.88	Hewlett Packard Co.	95.38	-5.25	-5.2
NYS	33.13	16.75	Silicon Graphics	28.88	-2.63	-8.3
OTC	34.50	18.25	Sun Microsystems Inc.	31.25	1.88	-5.7
NYS	50.75	30.75	Tandy Corp.	41.38	2.50	-5.7
OTC	6.25	2.38	Zeos International Ltd.	6.06	-0.19	-3.0
Large Systems [illegible]						
ASE	10.88	5.25	Amdahl Corp.	9.75	-0.50	4.9
NYS	8.88	4.38	Convex Computer	6.63	-0.50	-7.0
OTC	3.88	0.50	Cray Computer	1.44	0.00	4.5
NYS	93.25	37.75	Cray Research Inc.	18.13	-1.13	-5.8
NYS	12.00	6.63	Data General Corp.	10.63	-1.00	-8.6
NYS	38.13	18.25	Digital Equipment Corp.	33.75	-1.50	-4.3
OTC	8.38	2.38	Encore Computer Corp.	3.69	-0.22	-5.6
NYS	51.75	40.25	Harris Corp.	40.25	-3.88	-8.8
NYS	75.38	51.38	IBM	69.13	-4.00	-5.5
OTC	18.75	7.50	NetFrame	8.00	-0.44	-5.2
OTC	19.38	3.88	Parallan Computer	4.88	0.00	0.0
OTC	16.50	5.38	Pyramid Technology	9.63	-0.38	-3.8
OTC	20.13	11.13	Sequent Computer Sys.	18.00	1.00	-5.3
OTC	6.84	3.25	Sequoia Systems Inc.	3.75	-0.3	-7.7
NYS	39.88	22.88	Stratus Computer Inc.	35.63	1.75	-4.7
NYS	19.13	10.00	Tandem Computers Inc.	16.63	-0.75	-4.3
OTC	30.00	3.88	TriCord Systems	5.75	-0.38	-6.1
NYS	16.38	8.63	Unisys Corp.	9.13	-3.25	-12.0
Software						
OTC	38.50	19.75	Adobe Systems Inc.	31.38	3.38	-9.7
OTC	6.50	4.00	American Software Inc.	4.00	-1.00	-20.0
OTC	15.25	6.75	Ask Computer Systems	13.13	0.00	0.0
OTC	80.00	20.13	Autodesk Inc. (H)	35.75	-2.38	-6.5
OTC	3.88	1.75	Bachman Info. Systems	1.88	-0.13	-3.1
OTC	38.25	20.50	BGS Systems Inc.	24.50	-0.88	-3.4
OTC	71.00	40.50	BMC Software Inc.	42.38	-1.31	-3.0
OTC	35.75	15.00	Boole & Babbage	25.75	1.00	4.0
OTC	16.88	6.50	Borland Int'l Inc.	9.63	-0.38	-3.8
OTC	15.00	6.75	Brock Control Systems Inc.	7.69	-0.19	-2.4
OTC	4.00	2.13	CE Software (L)	2.38	0.13	5.6
ASE	10.34	6.25	Cheyenne Software Inc.	10.63	-0.50	-4.5
OTC	16.13	8.50	Cognos Inc.	11.50	-1.63	-11.4
NYS	50.88	27.38	Computer Associates	43.63	-2.38	-5.2
NYS	5.38	2.50	Computervision Corp.	3.13	-0.25	-7.6
OTC	49.25	24.50	Compuware Corp.	34.38	-0.75	-2.1
OTC	14.75	9.00	Comshare Inc.	12.00	-0.38	-4.0
OTC	16.88	10.50	Corel Corp.	13.63	-0.25	-1.8
OTC	17.75	7.25	Dataware Technologies Inc.	12.50	-0.50	-3.8
OTC	6.75	2.50	Easel Corp.	3.88	-0.13	-4.2
OTC	39.25	16.25	FileNet Corp.	24.75	-1.00	3.9
OTC	15.00	3.00	4th Dimension	5.00	-0.38	7.0
OTC	18.00	8.13	Frame Technology	14.00	-1.25	-8.2
OTC	31.25	11.50	FTP Software Inc.	25.25	-1.63	-6.0
OTC	11.00	7.00	Group 1 Software	9.50	0.38	5.6
OTC	31.75	8.25	Gupta	13.63	1.13	9.0
OTC	10.88	5.13	Hogan Systems Inc.	5.69	-0.08	-1.1
OTC	40.25	18.00	HNRS	34.50	3.35	-8.8
OTC	39.75	11.25	Information Resources	14.13	-1.13	-7.4
OTC	39.88	14.25	Informix Corp. (H)	26.19	-2.69	-9.3
OTC	11.25	7.75	Intergraph Corp.	8.13	-0.13	-1.5
OTC	6.75	2.50	Intelligent Inc.	4.00	-0.25	-5.8
OTC	18.00	8.63	Intersolv Inc.	16.63	-0.38	-2.8
OTC	73.25	27.00	Intuit Inc.	65.63	-2.94	-4.3
OTC	18.75	2.25	KnowledgeWare Inc.	3.75	0.00	0.0
OTC	34.75	10.00	Legent Corp.	35.75	2.38	7.4
OTC	86.38	29.75	Lotus Development	38.50	3.38	-8.1
OTC	17.75	4.75	Magic Software Enterprises (L)	4.75	-0.13	-2.6
OTC	15.38	8.00	Manugistics Group Inc.	6.75	-1.00	-12.9
OTC	37.50	14.75	MapInfo Corp.	22.25	0.00	0.0
OTC	7.38	1.44	MathSoft	3.25	0.00	0.0
OTC	17.00	5.88	McAfee Associates	13.75	-0.25	1.8
OTC	17.25	9.38	Mentor Graphics	12.75	-0.63	-4.3
OTC	20.00	11.50	Micro Focus	14.75	-0.38	-2.7
OTC	11.63	4.63	Micrografx Inc.	5.63	-0.13	-2.2
OTC	65.13	39.00	Microsoft Corp.	61.38	-3.00	-4.7
OTC	46.50	20.25	Oracle Corp.	39.00	4.50	10.3
OTC	40.75	21.38	Parametric Technology	31.50	3.25	-9.8
OTC	24.50	13.38	ParcPlace Systems Inc.	33.25	-2.00	10.4
OTC	66.75	26.00	PeopleSoft	97.00	-6.75	-10.0
OTC	8.19	3.63	Phoenix Technologies	6.75	0.00	0.0
OTC	73.25	34.00	Powersoft	66.38	-3.25	-4.8
OTC	25.75	3.50	Platinum Software	13.38	-1.75	-12.4
OTC	33.25	9.00	Platinum Technology	19.50	-0.25	-3.3
OTC	34.75	27.00	Progress Software Corp.	33.75	1.75	5.5
OTC	4.13	1.94	Quarterdeck Office Sys.	3.08	-0.06	-2.9
OTC	34.00	9.38	Rainbow Technologies Inc.	13.38	-1.88	12.2
OTC	9.25	2.50	Rasterops (L)	3.88	0.25	9.5
OTC	8.50	2.88	Ross Systems	9.38	-0.56	-8.3
OTC	33.25	2.38	Sapiens Intl. Corp. N.V.	3.44	-0.13	-4.9
OTC	21.00	9.75	Softkey International Inc.	19.00	0.13	0.7
OTC	8.63	3.00	Software Publishing Corp.	4.88	-0.75	-13.3
OTC	10.00	5.00	State of the Art	7.50	-0.75	-9.1
NYS	35.63	25.00	Sterling Software Inc.	29.13	-1.38	-4.5
OTC	19.88	3.63	Struct. Dynamics Research	6.25	0.00	0.0
OTC	57.00	35.25	Sybase Inc.	42.50	-1.75	-4.0
OTC	19.63	9.88	Symantec Corp.	17.38	-1.56	8.3
OTC	49.75	33.88	Synopsys	41.50	-3.75	-8.3
OTC	18.00	10.63	System Software Assoc.	13.75	0.13	0.9
OTC	6.25	3.25	Tecnic Corp.	4.88	-0.31	-6.0
OTC	30.00	11.75	Viewlogic Systems	20.50	-1.13	-5.2
OTC	23.25	13.25	VMark Software Inc.	14.00	0.25	1.8
OTC	13.25	8.25	Walker Interactive Systems	6.50	-0.38	-5.5
OTC	60.00	29.25	Wall Data Inc.	33.38	-2.00	5.7
Semiconductors [illegible]						
NYS	31.75	16.75	Advanced Micro Devices	24.63	-0.38	1.5
NYS	36.75	31.13	Analog Devices Inc.	32.63	-3.13	-8.7
OTC	37.63	13.88	Atmel Corp.	33.38	-0.63	-1.8
OTC	7.38	3.63	Chips and Technologies	6.63	0.13	1.9
OTC	44.63	24.88	Cirrus Logic	25.38	-1.69	-6.0
NYS	24.13	11.88	Cypress Semiconductor Corp.	20.75	-2.00	-8.8
NYS	20.13	13.00	Dallas Semiconductor	14.38	-0.63	-4.2
OTC	28.25	14.75	Integrated Silicon Systems	25.75	1.00	-3.7
OTC	73.38	56.00	Intel Corp.	64.38	1.69	2.7
NYS	45.38	13.25	LSI Logic Corp.	38.00	-3.50	-8.0
OTC	30.13	13.88	Lattice Semiconductor	15.94	1.19	-6.9
NYS	44.88	17.44	Micron Technology	39.38	-0.63	-1.6
NYS	61.13	42.13	Motorola Inc.	55.63	-4.13	-6.9
NYS	25.00	14.38	National Semiconductor	17.38	-0.88	-4.8
OTC	16.25	8.25	Sierra Semiconductor	14.00	-1.00	-6.7
NYS	89.50	58.75	Texas Instruments	74.75	-3.88	-4.9
OTC	16.38	9.38	VLSI Technology	11.25	-1.13	-9.1
OTC	10.00	2.88	Weitek	3.25	-0.13	-3.7
ASE	20.38	8.63	Western Digital Corp.	17.25	-0.38	-2.1
OTC	61.00	35.00	Xilinx (H)	57.50	-1.38	-2.5
OTC	37.75	26.00	Zilog Inc. (L)	26.25	-0.25	-0.9
[illegible]						
OTC	10.60	14.50	American Power Conversion	15.88	1.25	7.3
OTC	27.25	18.25	Banctec Inc.	20.50	-0.25	-1.2
OTC	8.25	3.25	Cambex Corp.	3.75	-0.25	-6.5
ASE	5.50	3.88	Cognitronics Corp.	3.88	-0.00	1.1
NYS	20.50	10.25	Conner Peripherals	11.88	-0.88	-6.9
OTC	24.00	9.75	Creative Technologies Inc.	12.88	-0.25	-1.9
OTC	11.25	3.50	Data Race Inc.	4.25	-0.13	-2.9
ASE	9.75	4.13	Dataram Corp.	8.25	-0.13	-8.0
NYS	24.00	13.38	EMC Corp.	20.88	-2.25	-9.7
OTC	12.38	3.13	Emulex Corp. (H)	11.38	0.75	7.0
OTC	21.88	13.25	Evans & Sutherland	12.00	-0.25	-2.0
OTC	24.00	14.00	Exabyte	20.19	2.81	-12.2
OTC	24.88	2.63	Intelligent Info. Systems	2.63	-0.13	-4.3
OTC	4.50	3.38	Iomega Corp.	3.88	-0.25	-6.1
OTC	9.75	3.88	JPL Systems Inc.	3.00	-0.13	-4.0
OTC	28.88	15.25	Komag Inc.	24.75	-0.38	-3.0
OTC	8.63	2.63	Maxtor Corp.	4.06	-0.19	-4.4
OTC	8.38	4.88	Micropolis Corp.	6.63	-0.25	-2.6
OTC	21.50	10.25	Pinnacle Micro Inc.	13.00	-1.00	-8.3
OTC	29.00	6.38	Printronix Inc.	25.75	1.63	-5.9
NYS	10.75	6.88	QMS Inc.	9.13	-0.63	-6.4
OTC	29.25	11.63	Quantum Corp.	15.25	-0.25	-1.6
OTC	18.25	7.38	Radius Inc.	8.63	-0.50	-5.5
NYS	17.00	6.38	Recognition International	7.25	-0.13	-1.7
OTC	6.88	4.00	Rexon Inc.	5.13	0.00	0.0
OTC	28.75	18.63	Seagate Technology	23.75	-1.25	-5.0
NYS	41.38	25.00	Storage Technology	29.00	-0.50	-1.7
NYS	40.50	31.38	Tektronix Inc.	35.63	-1.13	-3.6
NYS	112.75	80.50	Xerox Corp.	97.25	-4.75	-4.7
Services [illegible]						
OTC	18.50	11.00	American Mgmt. Systems	16.38	1.50	-8.4
NYS	4.25	3.25	Anacomp Inc.	3.25	-0.25	-10.0
OTC	20.75	14.50	Analysts Int'l.	16.50	-0.65	-3.3
NYS	58.88	47.63	Auto Data Processing	56.63	1.38	-2.6
OTC	19.38	14.00	Cambridge Tech. Partners	18.00	-1.00	-5.3
NYS	27.50	18.25	Ceridian Corp.	25.00	1.50	-5.7
NYS	24.25	17.25	Comdisco Inc.	21.38	-0.38	-1.8
OTC	14.38	6.38	Computer Horizons	14.50	-0.50	-3.3
NYS	48.13	38.66	Computer Sciences	44.50	-3.38	-7.0
NYS	10.38	6.50	Computer Task Group	7.75	0.25	3.3
NYS	28.63	8.75	CompUSA Inc.	12.13	-0.50	-4.0
OTC	11.38	5.38	Control Data Systems Inc.	5.88	-0.25	-4.1
OTC	11.00	8.13	Egghead Discount Software	8.38	-0.44	-4.9
NYS	38.50	26.50	General Motors E (EDS)	35.63	1.00	-2.7
OTC	11.00	7.25	Inacom Corp.	9.56	0.19	2.0
OTC	28.00	11.38	Intelligent Electronics	13.00	-0.38	-2.8
OTC	23.50	7.00	Merisel	8.88	-0.25	-2.7
OTC	32.38	8.25	Microage Inc.	11.38	-0.75	-6.2
OTC	40.38	28.50	Paychex	35.81	-2.44	-6.4
NYS	47.75	22.25	Policy Management Sys.	43.38	3.38	-7.4
NYS	28.25	19.25	Reynolds and Reynolds	22.75	-0.88	-3.7
OTC	20.50	17.00	SEI Corp.	18.75	0.25	1.4

KEY: (H) = New annual high reached in period (L) = New annual low reached in period
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Metering

CONTINUED FROM PAGE 1

users will become more intent on paying only for what they use. Meanwhile, the three main desktop software license providers — Microsoft Corp., Novell, Inc.'s WordPerfect Applications Group and Lotus Development Corp. — will continue to seek maximum revenue from potential usage practices and not give users the green light to float licenses.

"This technology could be very significant for LAN managers," said Ki Wilson, a senior microcomputer manager at Stone Container Corp. in Chicago. "It could help a site stay compliant while spreading the software costs across a much larger pool" of billable users.

That larger pool would be contingent on license floating and concurrent license structures. A network administrator could conceivably float software to another site by allocating the licenses to another server in another time zone. With enterprisewide metering capabilities, users could theoretically monitor their international usage from a single management console and prove compliance with software licensing agreements.

The greatest savings will go to users who have concurrent licensing agreements, which allow a site to buy fewer licenses than the number of end users at the site, assuming the maximum number of users does not exceed the number of licenses.

Count on them

New metering products set to ship are McAfee's Sitemeter 5.0 and Sabre Software Corp.'s Saber Enterprise License Manager 5.0. The products are considered breakthroughs in the software management realm not only because they provide multiserver metering and reporting from one management console but because they meter software usage over TCP/IP and IPX transport layers. Until now, most metering systems were confined to one server, usually a Novell, Inc. NetWare server running IPX. The McAfee product begins shipping this week.

"There are at least 1,000 large corporations in the U.S. that could benefit from being able to judiciously meter their enterprise licensing," said Matthew Cain, an analyst at Meta Group.

Concurrent licensing is quickly becoming the model of choice for thrifty information systems shops. In a *Computerworld* survey of 50 IS managers, 52% said their software license structure is based on a concurrent-usage model; 42% said they license per desktop.

However, combining floating and concurrency has its risks. It may be illegal to float concurrent licenses without multinational usage rights built into the licensing agreement.

"If your agreement does not expressly prohibit or condone [floating], it's a jump ball," said John Yates, an attorney who heads up the technology group at Morris, Manning & Martin in Atlanta. "It gets more difficult when you go international," Yates added.

No floating here

According to Corporate Software, Inc., a reseller in Norwood, Mass., most concurrent software licenses would not allow floating because they assume the software will be used only on a single server.

However, a small fraction of large, international users have worldwide licensing agreements with vendors, said Matthew Cain, an analyst at Meta Group, Inc. in Stamford, Conn., and these are the ones that would use enterprise metering.

While no vendors are rushing to accommodate floating, all say they are reviewing their concurrent licensing policies. For example, WordPerfect President Ad Rietveld, calling international floating an interesting idea, said it was something vendors would have to figure out sooner or later.

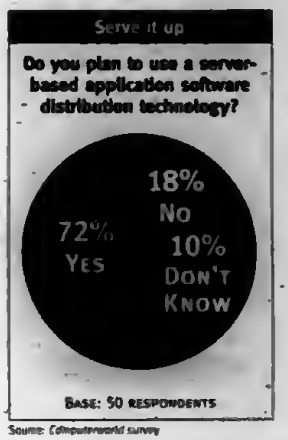
WordPerfect President Ad Rietveld: *'There are marketing and legal questions. It won't just happen overnight'*

"We've treated software licenses like furniture. You might not sit in one room all the time, but you'd like a chair there when you do," he said. "But how do you support this [floating] policy and make money on it at the same time?"

While some vendors look forward, others look back. For example, a Microsoft official contended that it was in users' best interest to forgo the metering investment and just settle into a sitewide, one-license-per-desktop agreement.

"I don't think so," said Ed Smith, LAN manager at Monumental General Insurance Group in Baltimore. Like other users and analysts, Smith dismissed the Microsoft one-user theory, pointing to numbers that prove otherwise.

Monumental has 350 end users using Word. With a $750 metering application from On Technology Corp. in Cambridge, Mass., Smith found he needs only 50 software licenses at peak use and has bought a concurrent license to accommodate that number.



Source: Computerworld survey

Paying $200 for each of his 350 end users would cost him $70,000; instead, he pays approximately $10,000 for 50 users, plus $750 for the metering tool, a total of $10,750.

"This one-license-per-desktop structure won't save me any money unless Microsoft is willing to sell me Word for about $25 per copy," Smith said. "And based on the way they do business, I don't think they're about to do that."

"What we're monkeying with here is the whole software business framework," said Chris Germann, an analyst at Gartner Group, Inc. in Stamford, Conn. "And the only thing inhibiting the deployment of this technology at user sites is the way vendors want to sell their software."

Worldwide support: Truth or dare?

CONTINUED FROM PAGE 1

tion for customers in Europe and the U.S. Through the alliance, the company will sell, support and manage hardware and software from multiple vendors in several locations on both continents.

The Entex arrangement highlights a trend toward a customer support model that provides a more standardized, centrally managed approach to systems management in multiple locations worldwide, analysts said.

"This is a trend that has been brewing very quietly for at least a couple of years," said Stephen Clancy, an analyst at market research firm Dataquest, Inc. in Framingham, Mass. "Global account management is something that a lot of companies have begun to look at very seriously these days."

Global goodies

A recent Dataquest study, updating a 1991 study on global support, showed that multinational companies are pursuing around-the-globe management for tactical reasons such as consolidating their purchasing power or centralizing their billing. Faster implementation of corporate information systems standards is another oft-cited benefit.

Dataquest interviewed a dozen vendor companies such as systems vendors, PC manufacturers, software developers and systems integrators. The study showed that to have a successful global presence a vendor must do the following:

- Have a strong local presence.
- Offer competitive pricing and discounts.
- Make support available in local languages.

"In theory, it's an excellent idea, and multinationals would love to see global one-stop shopping and service," said Tom Charbonneau, manager of corporate information services at Bose Corp. in Framingham, Mass., and chairman of the Society for Information Management's working group on information technology procurement.

One reason: It would provide a centralized method of tracking worldwide PC inventories, which could save $5,000 to $10,000 a shot (per inventory), he noted.

One user who has tried and liked such an arrangement is John Smith, manager of end-user computing at Kennametal, Inc., an international manufacturer of carbide cutting tools in Latrobe, Pa.

"The biggest advantage is that we can drive better prices through volume purchases," he said. The company, which recently acquired a German firm, hopes to leverage its purchasing scale to drive a better bargain.

At Miles Corp., a division of Bayer AG of Germany, "It allows us to put in place a single all-encompassing agreement that will enable us to leverage our buying power as a global company," said James Baehr, manager of procurement and services.

Baehr said another advantage is gaining the "ability to interpret international requirements and [deal with] different regulatory environments."

Ahead of their time

But some other users say vendors may be ahead of the market when it comes to international IS management.

While centralized purchasing gives companies a way to track and manage PC inventories, it seems few large multinational companies are organized in such a way to take advantage of these benefits.

"Because we're highly decentralized, purchasing and support depends on strategies established by our divisions," said Walter F. DuPont, vice president of IS at Cooper Industries, Inc. in Houston.

At International Multifoods Corp., a worldwide food services company with corporate headquarters in Minneapolis, purchasing and service decisions are similarly left up to individual business units, according to corporate IS director Pat Halbach.

Charbonneau, for one, is skeptical about promises of truly worldwide service and support. He said he has yet to find a vendor that can truly provide global service and support.

"You have to be leery about companies that say they're going to support you globally because from our experience, it doesn't happen," he said. A vendor "would have to make unbelievable investments to reach all of the places where we have locations."

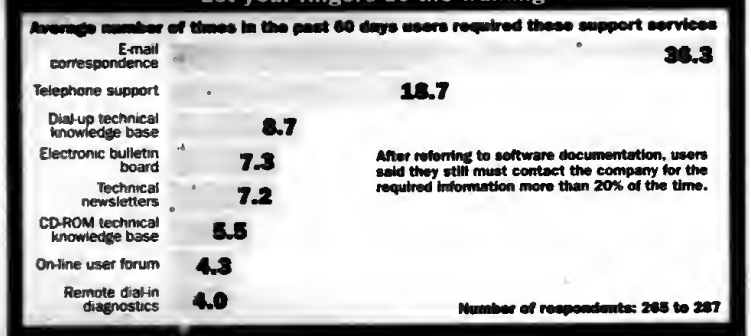
In certain countries or regions, particularly in Latin and Central America, third-party vendors are inevitably called in because the so-called global service provider does not and cannot have a presence everywhere in the world, Charbonneau noted.

"That introduces an unknown element," he said.

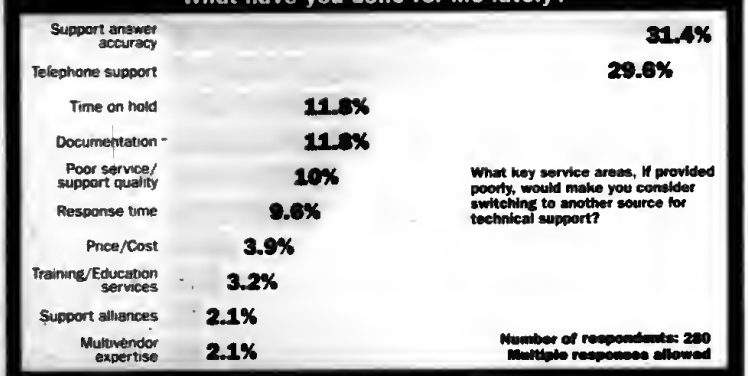
INDUSTRY PULSE: Software support

Let your fingers do the walking

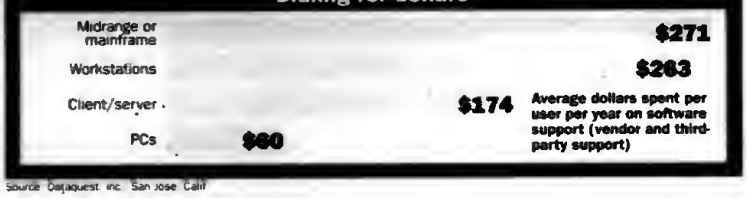
Average number of times in the past 60 days users required these support services



What have you done for me lately?



Dialing for dollars



Source: Dataquest Inc., San Jose, Calif.

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Inside Lines

Oracle on the prowl

Though rumors raced 'round the industry last week that Oracle plans a major acquisition — Lotus and Novell were popular guesses — several analysts said they didn't put much, ahem, stock in the talk. "This rumor doesn't hold any more water than the last couple that have circulated," said Tim McCollum at Dean Witter. Whispers started after Oracle's board OK'd doubling the number of shares the firm could issue, a move that often precedes a merger.

Lou Gerstner meets Mr. Microphone

The new IBM is boldly sailing into such uncharted realms as ... karaoke? Yes indeed. The not-so-starched Big Blue battalions plan to encourage lounge lizard execs to do their classic rock worst to sell a new multimedia server device that IBM's storage division will introduce in early 1995. The IBM MediaStreamer initially will send out up to 32 "streams" of the same multimedia data, enabling multiple singers, er, users to get at the information simultaneously.

Apple rolls toward Copland

Contrary to a published report, Apple has not decided to design full pre-emptive multitasking into its next-generation operating system, code-named Copland. Yet Apple's target date for Copland has slipped from mid-1995 to late '95, said John Mracek, senior director of operating system platform marketing. Copland will provide pre-emptive multitasking for networking, I/O and file system software, but not for application software. Mracek said Apple is also investigating placing Taligent's application environment on top of Copland.

Licensing the Sword in the Stone

Excalibur Technologies, based in San Diego, has agreed to license its text retrieval and document management product to Informix and to help the database maker embed the technology into its products, a source close to Informix said last week. At the DB Expo trade show next week, Informix plans to announce that it will add Excalibur's text and multimedia search functions to its OnLine relational database. Oracle and Sybase have announced similar plans to extend their databases to support multimedia.

Pentium killer wanna-bes

Oh, to be Intel, gleefully watching your rivals struggle into the Pentium market. An Advanced Micro Devices spokesman confirmed last week that the company has reached first silicon on its Pentium killer, the K5 chip. This means AMD will get alpha versions to customers before year's end, which is on schedule. Yet the market won't see systems based on the chip until late third-quarter 1995, by which time Intel will probably have its 186-MHz Pentium close to delivery.

ObjectStore gate swings open

Object database maker and IBM partner Object Design plans to preview a gateway and other access utilities that link its ObjectStore database to relational products, such as Oracle 7, an Object Design source said last week. The preview is expected at next week's DB Expo show. Rival Versant plans to release a similar product, Versant/M, in keeping with a trend among object database makers to distance themselves from their one-trick pony reputations (see column, page 100.)

The public disdain Microsoft and IBM have for each other has degenerated into a true zeal for the petty. At the Chili Cook-off at Comdex/Fall '94 in Las Vegas two weeks ago, IBM contributed to the charitable event by supplying all the napkins. Naturally, they had the IBM logo on them. Microsoft promptly threw all those napkins out of its booth and brought in its own. Time for someone in that relationship to grow up. Anyone with suggestions toward that end — or better yet, news items or tips — please get in touch with Computerworld *via our 24-hour voice-mail tip line at (508)-820-8555 or our toll-free number at (800) 343-6474. News Editor Maryfran Johnson can be reached by phone at (508) 820-8179, on the Internet at mjohnson@cw.com or through MCI Mail at 500-8017.*

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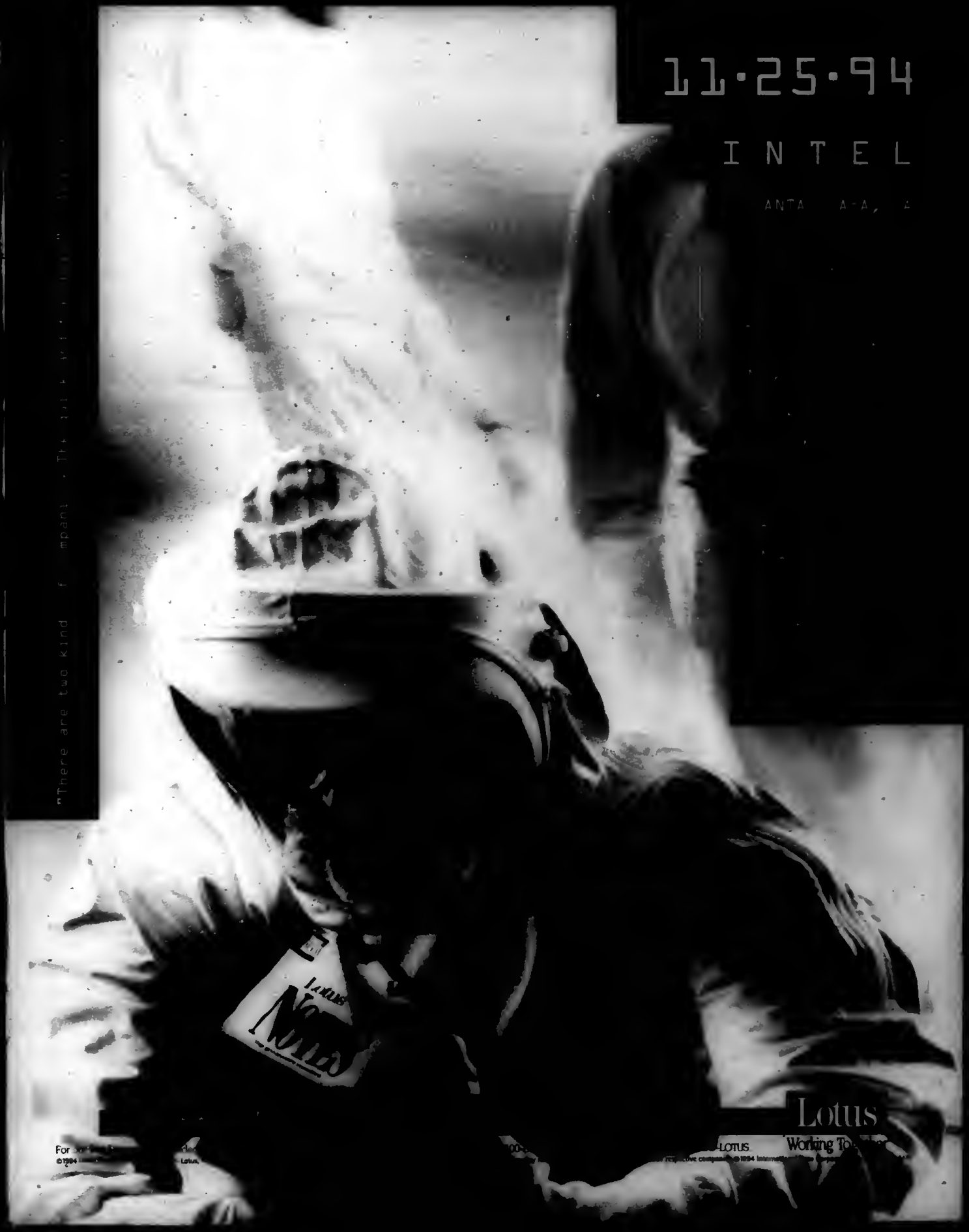

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